

PCWORLD

WWW.PCWORLD.COM

OCTOBER 1999 \$5.99



Gigantic Hard Drives

New Drives Hold Up to 27 Gigabytes! We Pick the Best



Buy Your Next Car on the Web

Where and How to Find Great Deals



No More Keyboards?

Voice Software, Recorders That Really Work

THE COMPLETE GUIDE TO

WINDOWS UPGRADES

WINDOWS 98, WINDOWS 2000,
NEXT YEAR'S TOP-SECRET "MILLENNIUM"

...OR EVEN LINUX



COMPAQ



Save \$400

on any of these notebooks or PCs with monitors when you sign up for CompuServe Internet Service for just \$21.95 a month.¹³ Call today for details.



PRESARIO 5700T INTERNET PC

Base price includes:

PRESARIO 5700T-600/3
INTERNET PC

Intel® Pentium® III Processor, 600 MHz
128 MB SyncDRAM expandable to 512 MB
28.0 GB (7200 rpm) UltraDMA Hard Drive¹
8X DVD-ROM Drive²
Creative Labs 3D Blaster 32 MB TNT2 Ultra Accelerator
Diamond Monster Sound MX300 PCI Audio Card³
6.0Mb Max Digital Modem⁴
JBL Pro Premium Speakers w/Subwoofer
Digital Creativity Imaging Center⁵
Home Phoneline Networking PCI Card⁶
Microsoft® Office 2000 SBE⁷
Microsoft Windows®98
Compaq CV915 19" Monitor (18.0" VIA)

\$2199⁺

AFTER REBATE
\$2599
-\$400 CompuServe Rebate
\$2199

256 MB SyncDRAM: Add \$199
Microsoft Office 2000 Professional Upgrade:
Add \$199
4X CDRW-ROM Drive⁸: Add \$199

Personalize by choosing:

Compaq Financing

Get the Compaq technology you want for a low monthly payment through the Compaq consumer financing program.⁹ From instant application processing to flexible payment options, financing is the fast and easy way to acquire the latest Compaq technology.



Compaq Printers

U900 Printer (shown) \$169.99
U300 Printer \$99.99
A900 Printer \$349.99

PRESARIO 1900T INTERNET
NOTEBOOK PC

Base price includes:

PRESARIO 1800T-PII 400
INTERNET NOTEBOOK PC

Intel Mobile Pentium II Processor, 400 MHz
15.0" TFT Active Matrix Display
64 MB SyncDRAM expandable to 128 MB
6.4 GB UltraDMA Hard Drive¹
4X DVD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated 3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI)³
Ultra H-Capacity Lion Battery
256 KB Integrated "On-chip" cache
3.5" 120/1.44 MB High Capacity SuperDisk™ drive
Microsoft Office 2000 SBE + Microsoft Windows®98

\$2599⁺

AFTER REBATE
\$2999
-\$400 CompuServe Rebate
\$2599

128 MB SyncDRAM: Add \$200
Compaq Value Case: Add \$39
Extra Ultra H-Capacity Lion Battery: Add \$129

Personalize by choosing:

Y2K

COMPAQ PRODUCTS ARE YEAR 2000 HARDWARE COMPLIANT.¹⁴

All prices shown are Compaq Direct selling prices and do not include applicable sales tax and shipping, are valid in the U.S. only, and are subject to change or cancellation without notice. Not all models available in retail approval. ¹System tested using NIST YMARK2000 hardware test. Non-compliant third-party software/hardware products may affect roll-over results. For more details, see www.compaq.com/year2000. ²For hard disk protocol: ADSL/G Lite/56K V.90 updates may be downloaded from Compaq's website when available. The ADSL/G Lite/56K V.90 protocol is designed to allow faster downloads from ADSL/G Lite/56K V.90-compliant may not reach 6.0Mbps, and will vary with line conditions and distance. ³ITU V.90 modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download speed is 56Kbps. ⁴Requires sharing subscriber profile information and viewing targeted ads. Other Online is a registered trademark of America Online, Inc. NetZero is a trademark of NetZero, Inc. ⁵Omega and Zip are registered trademarks and Zip Built-in is a trademark of Iomega Corporation. ⁶\$400 mail-in rebate form, a copy of a dated purchase receipt, and the UPC barcode number from outside of the computer box. All of the above must be completed and received by CompuServe within 120 days of purchase. ⁷Repayment for cancellation within month 1-12, \$300 repayment for cancellation within month 13-24, and \$200 repayment for cancellation within month 25-36. Allow 8-10 weeks from rebate approval for credit approval. Premium services carry surcharges, and communications surcharges may apply to AK and outside of the U.S. You may incur telephone charges, depending on your calling plan and location. ⁸One year parts and labor. Labor for desktop systems is pick-up service during the first 90 days of ownership. Labor for notebook systems is a pick-up service. Compaq, the Compaq logo, and Presario are registered trademarks of Compaq Computer Corporation. Names mentioned herein may be trademarks and/or registered trademarks of other companies. Call Compaq Monday-Friday, 7:00am-11:00pm (CT). © 1999 Compaq Computer Corporation. All rights reserved.

PRESARIO 5700T-600/3 INTERNET PC		PRESARIO 5700T-550/3 INTERNET PC		PRESARIO 5700T-500/3 INTERNET PC		PRESARIO 5700N-500 INTERNET PC	
Intel Pentium III Processor, 600 MHz		Intel Pentium III Processor, 550 MHz		Intel Pentium III Processor, 500 MHz		Intel Celeron™ Processor, 500 MHz	
128 MB SyncDRAM expandable to 512 MB		128 MB SyncDRAM expandable to 512 MB		128 MB SyncDRAM expandable to 512 MB		64 MB SyncDRAM, 8 MB dedicated for video memory	
18.0 GB (7200 rpm) UltraDMA Hard Drive ¹		20.0 GB UltraDMA Hard Drive ¹		13.0 GB UltraDMA Hard Drive ¹		10.0 GB UltraDMA Hard Drive ¹	
8X DVD-ROM Drive ²		8X DVD-ROM Drive ²		32X Max CD-ROM Drive ³		8X DVD-ROM Drive ²	
Savage4 Pro 16 MB 2X AGP Graphics Card		Savage4 Pro 16 MB 2X AGP Graphics Card		Savage4 Pro 16 MB 2X AGP Graphics Card		Integrated 2X AGP 3D Graphics	
Diamond Monster Sound MX300 Live PCI Audio Card		ESS Solo PCI Audio		ESS Solo PCI Audio		Aureal A3D Interactive 360° Positional Sound	
56K ITU V.90 Modem ⁴		56K ITU V.90 Modem ⁴		56K ITU V.90 Modem ⁴		56K ITU V.90 Modem ⁴	
Klipsch v.2-400 Speakers		JBL Pro Amplified Speakers		JBL Pro Amplified Speakers		JBL Pro Amplified Speakers	
Digital Creativity Imaging Center ⁵		Digital Creativity Imaging Center ⁵		Digital Creativity Imaging Center ⁵		Creativity Action Center	
Home Phoneline Networking PCI Card ⁶		Home Phoneline Networking PCI Card ⁶		Microsoft Featured Home Collection + MS Word		128 KB Integrated L2 Pipeline Burst Cache	
Microsoft Featured Home Collection + MS [®] Word		Microsoft Office 2000 SBE		Microsoft Windows98		Microsoft Featured Home Collection + MS Word	
Microsoft Windows98		Microsoft Windows98		Compaq CV715 17" Monitor (16.0" VIA)		Microsoft Windows98	
Compaq CV715 17" Monitor (16.0" VIA)		Compaq CV715 17" Monitor (16.0" VIA)		Compaq CV715 17" Monitor (16.0" VIA)		Compaq CV715 17" Monitor (16.0" VIA)	
\$1849⁺ <small>AFTER REBATE \$2249 -\$400 CompuServe Rebate⁷ \$1849</small>		\$1499⁺ <small>AFTER REBATE \$1899 -\$400 CompuServe Rebate⁷ \$1499</small>		\$999⁺ <small>AFTER REBATE \$1399 -\$400 CompuServe Rebate⁷ \$999</small>		\$749⁺ <small>AFTER REBATE \$1149 -\$400 CompuServe Rebate⁷ \$749</small>	
6.0Mb Max Digital Modem ⁴ : Add \$99		6.0Mb Max Digital Modem ⁴ : Add \$99		APC Back UPS Office 280: Add \$89		128 MB SyncDRAM: Add \$60	
Creative Labs 3D Blaster 32MB TNT2 Ultra Accelerator: Add \$109		Creative Labs 3D Blaster 32MB TNT2 Ultra Accelerator: Add \$109		20.0 GB UltraDMA Hard Drive ¹ : Add \$99		13.0 GB UltraDMA Hard Drive ¹ : Add \$30	
Compaq CV915 19" Monitor (18.0" VIA): Add \$190		JBL Pro Premium Speakers w/Subwoofer: Add \$49		8X DVD-ROM Drive ² : Add \$59		Tripp Lite Super 7 + tel Surge Protector: Add \$29	

PRESARIO 1900T-PII 400 INTERNET NOTEBOOK PC		PRESARIO 1800T-PII 400 INTERNET NOTEBOOK PC		PRESARIO 1900T-PII 366 INTERNET NOTEBOOK PC		PRESARIO 1800T-C400 INTERNET NOTEBOOK PC	
Intel Mobile Pentium II Processor, 400 MHz		Intel Mobile Pentium II Processor, 400 MHz		Intel Mobile Pentium II Processor, 366 MHz		Mobile Intel Celeron 400 MHz Processor	
13.3" TFT Active Matrix Display		15.0" TFT Active Matrix Display		13.3" TFT Active Matrix Display		13.3" TFT Active Matrix Display	
64 MB SyncDRAM expandable to 192 MB		64 MB SyncDRAM expandable to 128 MB		64 MB SyncDRAM expandable to 192 MB		128 MB SyncDRAM expandable to 192 MB	
6.4 GB UltraDMA Hard Drive ¹		4.8 GB UltraDMA Hard Drive ¹		4.8 GB UltraDMA Hard Drive		4.8 GB UltraDMA Hard Drive	
4X DVD-ROM Drive ²		24X CD-ROM Drive ³		4X DVD-ROM Drive ³		24X Max CD-ROM Drive ³	
256-bit AGP Accelerated Graphics with 2.5 MB VRAM		ATI Rage LT Pro Hardware Accelerated 3D Graphics with 8 MB Video Memory		256-bit AGP Accelerated Graphics with 2.5 MB VRAM		256-bit AGP Accelerated Graphics with 2.5 MB VRAM	
56K ITU V.90 Modem (PCI) ⁴		56K ITU V.90 Modem (PCI) ⁴		56K ITU V.90 Modem (PCI) ⁴		56K ITU V.90 Modem (PCI) ⁴	
Ultra Hi-Capacity Lilon Battery		Ultra Hi-Capacity Lilon Battery		Ultra Hi-Capacity Lilon Battery		Ultra Hi-Capacity Lilon Battery	
256 KB Integrated "On-chip" cache		256 KB Integrated "On-chip" cache		256 KB Integrated "On-chip" cache		128 KB Integrated "On-chip" cache	
Microsoft Office 2000 SBE		Microsoft Featured Home Collection		Microsoft Office 2000 SBE		Microsoft Featured Home Collection	
Microsoft Windows98		Microsoft Windows98		Microsoft Windows98		Microsoft Windows98	
\$2299⁺ <small>AFTER REBATE \$2699 -\$400 CompuServe Rebate⁷ \$2299</small>		\$2199⁺ <small>AFTER REBATE \$2599 -\$400 CompuServe Rebate⁷ \$2199</small>		\$1999⁺ <small>AFTER REBATE \$2399 -\$400 CompuServe Rebate⁷ \$1999</small>		\$1799⁺ <small>AFTER REBATE \$2199 -\$400 CompuServe Rebate⁷ \$1799</small>	
Quick Dock w/integrated ethernet: Add \$129		128 MB SyncDRAM: Add \$200		128 MB SyncDRAM: Add \$200		4X DVD-ROM Drive ² : Add \$150	
10.0 GB UltraDMA Hard Drive ¹ : Add \$150		Mobility Auto Adapter: Add \$99		Extra AC Adapter: Add \$49		6.4 GB UltraDMA Hard Drive ¹ : Add \$100	
Extra Ultra Hi-Capacity Lilon Battery: Add \$129		6.4 GB UltraDMA Hard Drive ¹ : Add \$100		Extra Ultra Hi-Capacity Lilon Battery: Add \$129		Extra AC Adapter: Add \$49	

res. Illustrations may not accurately represent exact configurations priced. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. ¹This product is provided and administered by MBNA America Bank, N.A. Financing available upon request. GB= billion bytes. ²8X DVD-ROM Drive transfer rate is up to 10820 Kbps compared to 1352 Kbps for 1X DVD-ROM Drives. ³32X Max CD-ROM data transfer rates may vary from 1800 to 4800 Kbps. ⁴The 6.0Mb Max Digital Modem uses the ADSL/G Lite digital sources. Availability of ADSL/G Lite/56K V.90 services will vary by region and Internet Service Provider (ISP), and may differ from V.90 ISP services. Maximum achievable download transmission rates with ADSL/G Lite/56K V.90 are currently unknown. ⁵Download transmission rates are currently unknown, may not reach 55 Kbps, and will vary with line conditions. ⁶Works with most third-party devices. Home Phoneline Networking and the Ethernet Port cannot be used simultaneously. Additional PC must have CD-ROM Drive recording transfer rate may vary from 150 to 600 Kbps; reading transfer rate may vary from 1500 to 3600 Kbps. ⁷4X DVD-ROM Drives run at a higher maximum transfer rate of up to 5400 Kbps compared to 2nd-Generation DVD-ROM Drives. Terms and conditions also apply. See NetZero User Agreement for details. Compaq NET offers unlimited Internet access starting at \$11.99/month based on a prepaid 12-month service agreement. See User Agreement for additional terms and conditions. America Online requires purchase of any eligible Compaq Presario Desktop and Compaq monitor, or Presario Notebook, and a contract commitment to a 3-year (36 month) subscription for CompuServe 2000 Premier Internet service at the monthly rate of \$21.95, plus 30 days of purchase. Offer subject to credit approval and your acceptance of CompuServe Terms of Service. Membership termination prior to 36 months requires prorated repayment of the rebate plus a \$50 cancellation fee, based on the following: \$400 of rebate. Offer valid in the U.S. to customers 18 years or older for purchases through 10/9/99 or while supplies last. Limit one rebate per eligible computer purchased and per CompuServe 2000 Premier Internet account. A major credit card is required for purchase. CompuServe is a trademark of CompuServe Interactive Services, Inc. Full prepayment of \$790.20 is possible within the first 30 days after registration by calling 1-888-235-0889. Switching from monthly payments to prepayment is not permitted after 30 days after registration. In the U.S. Patent and Trademark Office. Microsoft, MSN, and Windows are registered trademarks of Microsoft Corporation. Intel, the Intel Inside logo, and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Product and company names are trademarks of their respective owners.

Compaq Home

It's like this. You're the kid.

Q

You think that's sweet? Check out the deals inside.

PRESARIO 5700N-466
INTERNET PC

Intel® Celeron™ Processor, 466 MHz
64 MB SDRAM, 8 MB dedicated for video memory
10.0 GB UltraDMA Hard Drive¹
32X Max CD-ROM Drive²
Integrated 2X AGP 3D Graphics
Aureal A3D Interactive 360° Positional Sound
56K ITU V.90 Modem³
JBL Pro Amplified Speakers
Creativity Action Center
128 KB Integrated L2 Pipeline Burst Cache
Microsoft Featured Home Collection + MS Word
Microsoft Windows® 98
Compaq CV515 15" Monitor (13.8" V/A)
Compaq CV715 17" Monitor (16.0" V/A): Add \$70
100 MB Iomega Zip Built-In™ Drive + 1 Disk⁴:
Add \$79
8X DVD-ROM Drive⁵: Add \$59

\$599*

AFTER REBATE
\$999
-\$400 CompuServe Rebate⁶
\$599

COMPAQ

More choices. More technology. More fun.

You remember the feeling. You'd take one step into your favorite candy store and your jaw would drop at the sight of all kinds of delectable treats. Well, it's about to happen again, thanks to the Compaq Presario Internet PCs you see here. Because when it comes to a variety of models, features, and prices, we really know how to satisfy the computer junkie in you.

The standard features alone are enough to make your mouth water. Rocket-like Intel® Celeron™, Pentium® II, and Pentium III processors, at speeds of up to 600 MHz. Our unique Easy Access Internet Keyboard for one-touch access to the Net. A choice of four Internet service providers:



We're the candy store.

PRESARIO 1800T-C400
INTERNET NOTEBOOK PC

Mobile Intel Celeron™ 400 MHz Processor
14.1" TFT Active Matrix Display
64 MB SDRAM expandable to 128 MB
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated 3D Graphics
with 8 MB Video Memory
56K ITU V.90 Modem (PC)³
Ultra Hi-Capacity Lilon Battery
128 KB Integrated "On-chip" cache
Microsoft Featured Home Collection
Microsoft Windows® 98⁴

\$1599*

AFTER REBATE
\$1999
-\$400 CompuServe rebate⁶
\$1599

128 MB SDRAM: Add \$200
6.4 GB UltraDMA Hard Drive¹: Add \$100
Quick Dock: Add \$99

Compaq.NET,¹¹ America Online,¹¹ CompuServe,¹¹ and NetZero.¹¹ A choice of how to buy, whether from your favorite retailer, or direct from Compaq via phone or the Web. You can even choose from a variety of financing options through Compaq consumer financing.⁷

And that's not counting all the goodies you can add on. Like Home Phoneline Networking,⁸ which lets the entire family surf the Net at the same time. Super-fast DSL modems, so when DSL service comes to your area, you'll be able to surf at lightning speed. Plus, you can add an Ethernet port to make your PC cable and satellite modem ready.

Yet there's even more to whet your appetite.

If your wish list includes playing games with mind-blowing 3D graphics, you can upgrade to a next-generation DVD-ROM drive. Capture, edit, and publish high-quality digital movies and still images with the Digital Creativity Imaging Center.⁶ Get the latest in removable storage with an Iomega Zip Built-In™ Drive¹² or CD Read/Write Drive.¹ In fact, whatever you want out of a computer, we can put into it.

The icing on this cake is that you can bring home all this fabulous stuff without spending your last penny.

Which is probably more than you could say about your visits to the corner candy store.

1-800-351-9685 **www.compaq.com**

Buy direct from Compaq, or purchase yours at your favorite retailer.



Compaq Retailers ABC Warehouse, American Appliance, American TV, Best Buy, Big City Express, Brandsmart USA, Buy.com, CDW, Circuit City, CompUSA, CompUSANET.com, Computer Town, Conn's, DataVision, Fred Meyer, Fry's Electronics, the good guys!, h.h. Gregg, Insight, J&R Computer World, Micro Center, MicroWarehouse, Multiple Zones, Nationwide Computers & Electronics, Nebraska Mega Mart, Office Depot, OfficeMax, Onsale.com, Outpost.com, PC Connection, PC Mail, PC Richard & Son, PC Warehouse, RadioShack, RCS Computer Experience, Sears, Shopping.com, Staples, State Street Discount, The Wiz, Tiger Direct, Tops Appliance City, ValueAmerica.com Visit a **Compaq Built For You Custom PC Center** at select retailers highlighted in bold above.

\$50 Rebate
Mail-in rebate good for a limited time.
See in-store coupon for details.

Let's talk beautiful color. Got a few seconds?

Introducing the BJC-6000 Color Bubble Jet® printer.

A few seconds is all you need. After all, print speeds up to 8 ppm in black and 5 ppm in color make it one of the fastest printers in its class. And with 1440 x 720 dpi as well as our exclusive Drop Modulation Technology™, the color is certainly something to talk about. Plus, our exclusive Canon Think Tank System™ features money-saving individual ink tanks. The BJC-6000. For about \$199* (after \$50 mail-in rebate), it's simply the smart choice. Visit our Web site at www.ccsi.canon.com/6000 or call 1-800-OK-CANON for details.

Print this document in just:

10 Seconds

Year-End Sales Report

Executive Summary
1998 was an extraordinary year for the company. Net sales increased by a record 217%, profitability is at an all-time high, and inventory levels are at an all-time low. The sales volume increase is attributed to the previous year's investment in training, profit and customer engagement which the year-to-date sales volume that was implemented in the first quarter of the year. Manufacturing costs are also at an all-time low.

Impact Of Web Commerce
Partially responsible for the record sales increase of our Web Commerce Systems is a change in our marketing mix, as well as the degree to which we implemented the sales program. To all customers, we have increased our sales program to the point that we have increased our sales volume by a record 217% over the previous year. This increase is attributed to a number of factors, including our sales volume, our sales volume, and our sales volume. This increase is attributed to a number of factors, including our sales volume, our sales volume, and our sales volume.

Improved Productivity With The Canon BJC-4000
When productivity was severely reduced through the purchase of new Canon BJC-4000 Color Bubble Jet printers. These remarkable printers combine speed and quality with a price that is unbeatable. The Canon BJC-4000 Color Bubble Jet printer is a true workhorse. It's fast, it's reliable, and it's easy to use. It's the perfect printer for your business. It's the perfect printer for your business. It's the perfect printer for your business.

Powerful Software Tools
All content on the website can now be designed and printed using the Canon BJC-4000 Color Bubble Jet printer. The software tools included with the BJC-4000 Color Bubble Jet printer are powerful and easy to use. They are designed to help you create professional-looking documents and presentations. They are designed to help you create professional-looking documents and presentations. They are designed to help you create professional-looking documents and presentations.

Print this document in just:

16 Seconds

Quarterly Report

Chart represents regional sales



Next Quarter Focus

- In-Store Training Representatives
- Sell-In / Sell-Out Inventory Balance
- Web Sharing and Commerce Programs
- Customer Data Requirements
- Manufacturing Cost and Inventory Sites
- Product Profiling and Consumer Usage

Print this document in just:

29 Seconds

Canon Bubble Jet™

Canon's BJC-4000 is the smart choice for all your printing needs

Key Features:

- Fast 8 ppm black and 5 ppm color**
- Rich, laser-quality black printing
- 1440 x 720 dpi color printing

Plus:

- Individual ink tanks that save money
- Ink sensors tell you when ink is low
- USB and Network compatible**



A Truly Remarkable Printer for an Amazing Price
The new BJC-4000 Color Bubble Jet™ printer is the smart choice for all your printing needs, whether for a home or office. It's available in a new design, with a sleek, professional look. It's available in a new design, with a sleek, professional look. It's available in a new design, with a sleek, professional look.

Canon Quality Canon Through The Years
The BJC-4000 Color Bubble Jet™ printer is a true workhorse. It's fast, it's reliable, and it's easy to use. It's the perfect printer for your business. It's the perfect printer for your business. It's the perfect printer for your business.

Intelligent Ink System (IIS)
In addition to its remarkable speed and quality, the BJC-4000 features intelligent ink tanks. These tanks can replace only the colors that are low, saving you money and reducing waste. They are designed to help you create professional-looking documents and presentations. They are designed to help you create professional-looking documents and presentations.

Visit our Web site at www.canon.com

Key Features

- Fast print speeds up to 8 ppm black & 5 ppm color
- Rich, laser-quality black printing
- 1440 x 720 dpi color & black printing
- Large individual ink tanks save you money

\$199* after \$50 mail-in rebate.

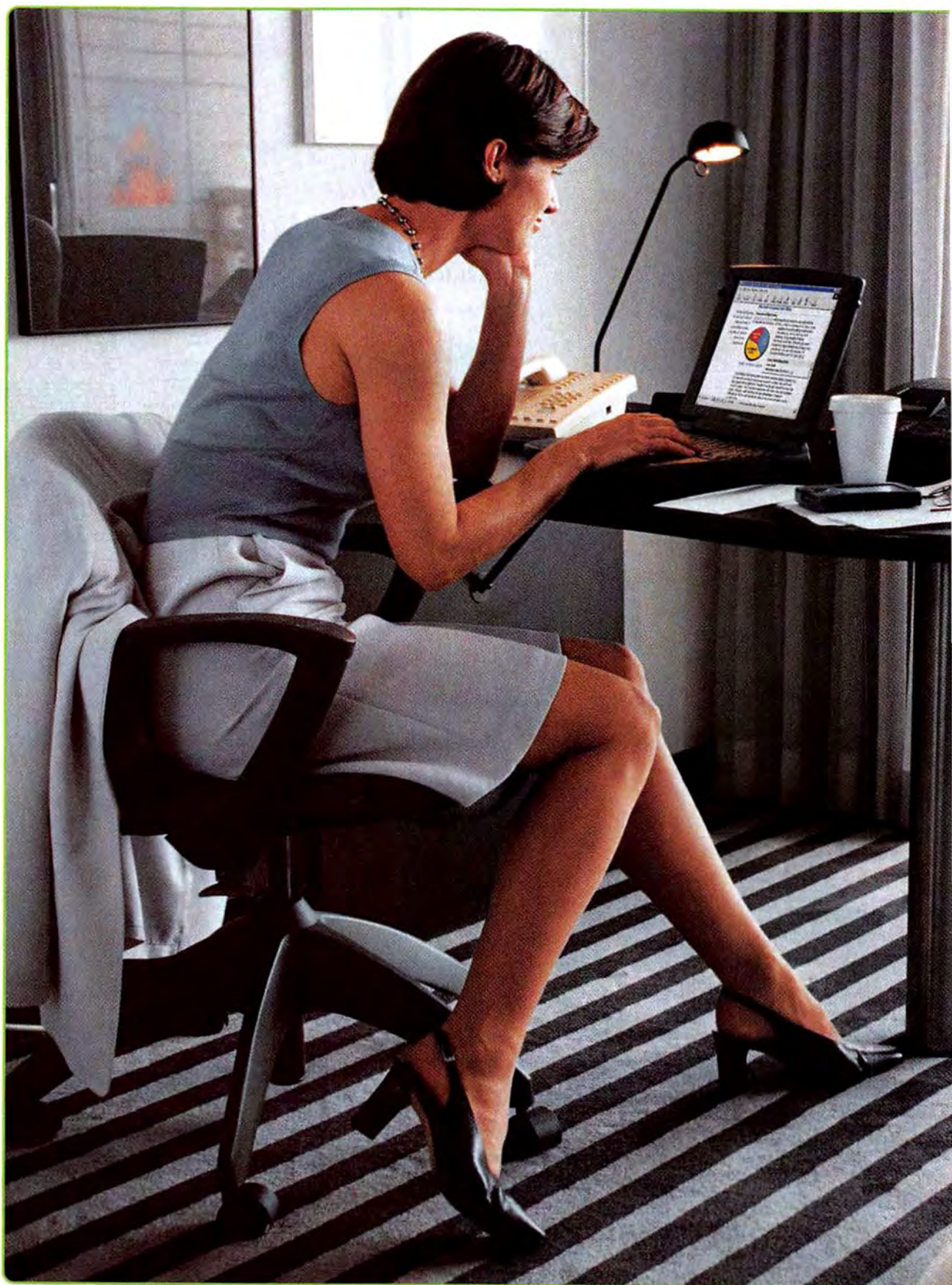


think tank
SYSTEM™

Save money with Canon's Individual Ink Tanks.

It's an innovation designed to save money and eliminate ink waste. The Canon Think Tank System™ has separate tanks for each ink color, allowing you to replace only the colors that run out. And optical ink sensors automatically monitor ink levels, giving you an on-screen warning when a color is low.

Canon



Where do you want to go today? **Microsoft**

Now you won't cringe when you hear:

**"We need your team's
collective input
by noon."**

With new Microsoft® Office 2000, getting everyone on the same page has never been easier. Just by clicking "Save as Web Page" you can save files to your intranet for others to contribute to or just view, eliminating the need for multiple versions. And by having in-line discussions within a document on your intranet, you can consolidate everyone's comments in one place. Plus, anytime a team member updates a document, you can be automatically notified by e-mail.

To see how Office 2000 enables teams to work as one using an intranet, view the Office 2000 multimedia demo at **www.microsoft.com/office/2000**



Microsoft
Office 2000
What Productivity Means Today

Now with Microsoft Office 2000 you can:

- Save files to a Web server as easily as you save them to your hard drive
- Keep your team's ideas in one place via in-line discussions within a document
- Be automatically notified by e-mail of changes to team documents and projects

COVER STORY

122 WINDOWS VS. WINDOWS
VS. THE WORLD

REVIEW Can anyone stay in the operating system arena with champion grappler Microsoft? Grab a ringside seat as we preview the Battle in Seattle—a no-holds-barred match pitting Bill Gates' tag-team OSs against challengers from Linux, Be, and Mac. If Windows body-slams the competition, which version of it should you support? We cover Windows 98, Windows 98 Special Edition, and Windows 2000, pinning down their strengths and weaknesses. We also take a hard-nosed look into the future.

125 Windows 2000

130 Windows 98 SE

141 OpenLinux 2.2 vs. Red Hat Linux 6


152 BeOS 4.5

FEATURES

159 BIG DOG HARD DRIVES

REVIEW Hard drives have grown like year-old mastiffs while getting  cheaper by the gigabyte. We boned up on 12 drives with capacities up to 27.2GB and unearthed a couple of Best Buys from Maxtor and Western Digital. We also discovered that when it comes to drive performance, some new technologies have more bark than bite.

185 SPEAK EASY

REVIEW No more  lonely nights reading to your voice recognition software so it can learn the way you talk—the new packages catch your drift in as little as 10 minutes. Our reviewer talks turkey about dictation software, chats up PC headset microphones, and speaks volumes on mobile recorders.



185



Additional material
available on PC World
Online: www.pcworld.com



122

SPECIAL REPORT

THE WEB AND YOU

201 SHOPPING FOR WHEELS ON THE WEB



Online you can't tell what the auto dealer is wearing—and that's just one advantage of car hunting from your PC. We show you where to find buying information, side-by-side model comparisons, reliable independent reviews, and sellers who skip the haggling and put their best price on the desktop. Now go kick some digital tires.

COVER Illustration by Nick Fain

TOP OF THE NEWS

54 INTERNET ANYWHERE

Sidewalk surfing is here, as new-generation devices let you plug into the Web wirelessly.

58 ATHLON HITS 650 MHz

AMD's latest CPU spurs power systems to bullet-train performance at reasonable cost.

59 AOL UNVEILS VERSION 5

The newest AOL invites you to log on by PC, PDA, set-top—or even gas pump.

64 THE 15-HOUR BATTERY

At last, a notebook power supply for cross-country bus trips.

66 SMALLER BUSINESS PCs

As cubicle real estate shrinks, PC configurations slim down.

70 OSHA SEEKS CURE FOR PC PAIN

The health agency's plans to oversee office ergonomics run into business opposition.

72 ULTRAPORTABLE PROJECTORS

A new generation of presentation hardware gives everyone in the room a good look.

NEW PRODUCTS

- 94 Quicken Deluxe 2000, Money 2000 Deluxe
- 95 Hewlett-Packard DeskJet 970Cse
- 96 KeeBoo, Webforia Organizer 1.1. utilities
- 98 Sharp Actius notebook, MetaCreations Poser 4 animation program
- 100 Symantec Act 2000, Surado Solutions Smart Contact Manager 2 contact managers
- 104 Logitech Cordless MouseMan Wheel, Interlink Electronics Freedom Writer Pro, Wacom USB Intuos Graphics Tablets, and Targus USB MiniMouse input devices
- 106 Creative Labs Creative Nomad, Pine D'music MP3 players
- 108 Logitech QuickCam Express, Creative Labs Video Blaster WebCam 3 video cameras
- 110 CrystalGraphics PowerPlugs: PhotoActive FX 1, Interactive PresentationPro add-ons; Adobe InDesign desktop publishing app
- 112 Intel InBusiness Storage Station, NetGear Network Disk Drive storage devices; Farber Systems Revolution 2001 MIS, Accounting & General Ledger software



201



220



159



TOP 100

220 MORE CHOICES: THE NEW TOP 100

TOP 100 We bid adieu to the Top 20 Power and Budget Desktops and welcome the trimmer, more focused Top 10 Power, Midrange, and Budget PCs.

222 POWER PCs

TOP 10 Dell's Dimension XPS T550 tops our revamped chart, which stresses performance more than ever.

228 MIDRANGE PCs

TOP 10 The Dell Dimension XPS T450 finds fresh life in this new category.

232 BUDGET PCs

TOP 10 Two \$1199 PCs from Micro Express snap up the Best Buy spots here. Meanwhile, five sub-\$1000 PCs, including the \$798 Acma A333, also make the chart.

238 NOTEBOOKS

TOP 10 We're seeing bigger hard drives on laptops. Micron's TransPort NX—with a 14GB hard drive—just misses the list.

242 HOME PCs

TOP 10 The first sub-\$1000 PC from Dell—the Dimension L400C—snaps up the number two spot on the budget chart.

248 MONOCHROME LASER PRINTERS

TOP 10 Want diamond-sharp text on a rhinestone corporate budget? NEC's new laser costs just \$799—with a duplexer.

251 SCANNERS

TOP 10 As our Top 10 Scanners chart makes its print debut, say good-bye to parallel port offerings—it's all about USB.

253 17-INCH MONITORS

TOP 10 Two oldies but goodies—the IBM P72 and the ViewSonic PT775—still rule the roost.

257 GRAPHICS BOARDS

TOP 10 AGP boards grab 70 percent of the chart; 3dfx Voodoo3 charms PCI.

259 MODEMS

TOP 10 Zoom's Dualmode retains its lead; MaxTech's prices reach a new low.

HERE'S HOW

266 WINDOWS TIPS



Address bar unknown? Learn the ins and outs of this handy Explorer feature. Plus batch file alarms and how to save disk space on dual-boot systems.

270 WINDOWS NT



Escape the Recycle Bin of history, avoid sharing drives and folders.

272 ANSWER LINE



Help Norton 2000 help you, stabilize Windows, archive Outlook Express e-mail, delete .cab files safely.

274 INTERNET TIPS



Customize your browser to make Web pages easier to read, diamonds in the AOL rough, share Eudora across PCs.

282 WORD PROCESSING

Hyperlink your documents, catch recurring typos, place graphics where you want them.

286 SPREADSHEETS

Avoid visual gridlock with AutoShapes, spot repeating values in a range.

288 HARDWARE TIPS



Use hardware profiles to accelerate start-up, find out if your phone line is slowing down your Internet connection.

290 UPGRADE GUIDE

Connect two or more PCs, step by step.



25

RESOURCES

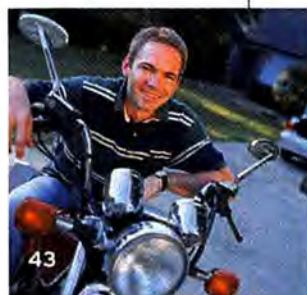
- 14 HOW TO CONTACT PC WORLD
- 28 COMING UP
- 292 MAIL-ORDER SHOPPING GUIDE
- 299 PC WORLD MARKETPLACE
- 321 PRODUCT INFORMATION CARD
- 324 ADVERTISER INDEX
- 325 EDITORIAL PRODUCT INDEX



290



282



43



37

DEPARTMENTS

- 19 **UP FRONT** As AOL and Microsoft battle, will consumers get caught in the cross fire?
- 25 **LETTERS** Readers sound off about spam at AOL and tech support that falls short.
- 33 **CONSUMER WATCH** Cable Net users in one town fight for service standards.
- 37 **ON YOUR SIDE** The FTC cracks down on the evils of two lessors.
- 43 **GOT A PROBLEM?** Can't remember to do your backups? Here are some solutions.
- 47 **HOME OFFICE** Steve Bass finds out whether he's dweeb enough for a 22-inch flat-screen monitor.
- 53 **BUGS AND FIXES** Windows 98 SE shutdown glitches, Windows NT 4 Service Pack 6.
- 330 **FULL DISCLOSURE** Will the Millennium OS reveal Microsoft's creative bankruptcy?



33

PCW ONLINE

TOP 100 SNEAK PEEK

REVIEW Read PC World's reviews of new desktop PCs just days after manufacturers send them to us—and weeks before they appear in the magazine.

www.pcworld.com/oct99/desktops

GET STARTED INVESTING ONLINE

HOW-TO Anyone with a computer and \$500 can open a Net brokerage account, and the booming stock market makes investing online attractive. Here's what you need to know to get your piece of the action.

www.pcworld.com/oct99/trade

TOP 5 CD-REWRITABLE DRIVES

REVIEW As CD-RW drives get faster and cheaper, they become a better option for sharing and archiving data. We rounded up a batch of the newest models for in-depth testing and picked the five best.

www.pcworld.com/oct99/cdrws



PC WORLD ONLINE

www.pcworld.com

Technology so affordable,



you can extend the virtual office to virtually everyone.

With the Sprint PCS Clear Wireless WorkplaceSM, you get a simple, cost-efficient way to help employees at all levels work better. We offer the only all-digital, all-PCS nationwide network built from the ground up, serving more than 280 major metropolitan areas. You get clear calls and a volume discount that applies to all users nationwide. Plus we offer management reporting software that helps you analyze and forecast wireless costs. Which means, everyone in the virtual office can be more productive, including yourself.



The Sprint PCS Clear Wireless Workplace | 1-877-255-9008 or www.sprintpcs.com/clear



The clear alternative to cellular.SM

Sprint PCS[®]

©1999 Sprint Spectrum L.P. All rights reserved. Sprint, Sprint PCS and the diamond logo are registered trademarks of Sprint Communications Company L.P., used under license. Sprint PCS Phone is a trademark of Sprint Communications Company L.P.

IBM, Gateway, HP, and Apple buy our memory direct.

They don't take risks. Neither should you.

Compare the Savings . . .

64MB Upgrade		
Compaq	Kingston	Crucial
Presario 5070	\$93.00	68.39
Deskpro EN C400	\$93.00	62.69
Deskpro EP 6400	\$93.00	68.39
Presario 1255 Laptop	\$91.00	62.69
Micron Electronics	Kingston	Crucial
Millennia 400	\$93.00	62.69
Millennia MME P200	\$93.00	62.69
ClientPro VXE 200/233	\$93.00	68.39
TransPort Trek2 Series	\$119.00	62.69
Gateway	Kingston	Crucial
G6-300	\$93.00	62.69
P5-200	\$314.00	161.49
GP6-300	\$93.00	62.69
IBM	Kingston	Crucial
Aptiva (2140)	\$93.00	62.69
PC 300GL (6591)	\$93.00	62.69
PC 300PL (6892-50U)	\$93.00	68.39
HP	Kingston	Crucial
Pavilion 3260	\$93.00	62.69
BRIO 8338	\$93.00	62.69
Vectra VL Series 8	\$93.00	68.39
Apple	Kingston	Crucial
iMAC	\$91.00	62.69
Power Mac G500 Series	\$222.00	170.99
Power Mac G3	\$93.00	62.69
Power Mac G3 PC100	\$93.00	68.39

Crucial prices reflect a 5% discount for placing your order online.

Prices were current as of 8/5/99, however, they can (and do) change daily.

Individual prices may vary according to your specific system and memory type.

(All prices were taken from the Web sites of Crucial and Kingston on 8/5/99)

Buy your memory direct from one of the
largest memory manufacturers in the world.

Performance, reliability, selection *and* factory
direct savings — Memory is Crucial.

*"My clients demand high-performance
systems. I recommend Crucial memory to
them and to anyone who wants more
speed, power and reliability."*

Mark Neumann, Systems Consultant

Online discounts for over 30,000 upgrades at:
www.crucial.com/pcwd
or call toll free 1-888-363-3065



Illustration by Jeremy Davies

The memory experts.

Circle 50 on card or go to www.pcworld.com/productinfo

crucial
TECHNOLOGY
A Division of Micron

THE Computer PAGE.

Know Your Network

UPGRADING & FIXING NETWORKS FOR DUMMIES®, 2ND EDITION

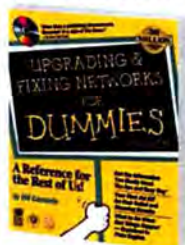
by Bill Camarda

Get your network running at top speed by optimizing performance the Dummies way. Camarda, editor of Barnes & Noble's *Cyberian Express*, tells you exactly how to sort through today's technical jargon, build an intranet, connect the LAN to the Internet, create server access, provide security, and more. Includes a CD-ROM. (IDG)

Pub. Price: \$29.99

Discount 20%

Our Price: \$23.99



NETWORK+ CERTIFICATION FOR DUMMIES®

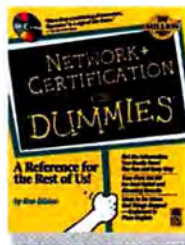
by Ron Gilster

Lighten the heavy load of studying for CompTIA's A+ exam with *Network+ Certification for Dummies*. Approaching the exam's fifteen most essential networking topics in true Dummies style, this single-source guide has the added benefits of self-assessment tests and a customizable test engine on CD-ROM. (IDG)

Pub. Price: \$29.99

Discount 20%

Our Price: \$23.99



NETWORK+ EXAM CRAM™

by Scott Reeves & Kalinda Reeves

If you really need to pass the Network+ exam, pick up *Network+ Exam Cram* for proven test-taking strategies, practice exams, warnings on trick questions, study tips and a bonus Cram Sheet loaded with tips, acronyms and memory joggers. (Certification Insider Press)

Pub. Price: \$29.99

Discount 20%

Our Price: \$23.99



WEBMASTER IN A NUTSHELL, 2ND EDITION

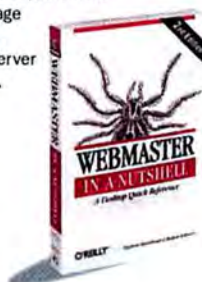
by Stephen Spainhour & Robert Eckstein

Webmasters working on Unix-based Web servers will find all the essential information they need in this one handy volume. It covers HTML 4.0, Cascading Style Sheets (CSS), the next generation markup language XML, CGI, JavaScript 1.2, PHP, HTTP 1.1, Apache server administration, and more. (O'Reilly)

Pub. Price: \$24.95

Discount 20%

Our Price: \$19.96



MANAGING MICROSOFT EXCHANGE SERVER

by Paul Robichaux

Get no-nonsense, hands-on advice on planning, installing, managing, maintaining, and troubleshooting Exchange networks. Everything you need to know about Internet integration, storage management, cost of ownership, system security, and performance management is packed into this practical guide. (O'Reilly)

Pub. Price: \$34.95

Discount 20%

Our Price: \$27.96



MICROSOFT EXCHANGE SERVER IN A NUTSHELL

by Mitch Tulloch

No matter what your needs—whether you're setting up a single Exchange server, implementing an enterprise-wide multi-site rollout or reviewing for the MCSE exam—*Microsoft Exchange Server in a Nutshell* is the guide you need to take you through both configuration and daily administration tasks. (O'Reilly)

Pub. Price: \$24.95

Discount 20%

Our Price: \$19.96



Save on these titles

along with **20%** off our top 25 bestselling computer books.

SAMS TEACH YOURSELF SQL IN 21 DAYS, 2ND EDITION

by Ryan K. Stephens, Ronald R. Plew,
Bryan Morgan & Jeff Perkins

Programmers, administrators and database designers all can benefit from learning how to get the most out of SQL (Structured Query Language). A powerful tool for improving productivity, SQL enables you to create tables within a database, query for information, change system settings, and more. (Sams)

Pub. Price: \$39.99
Discount 20%
Our Price: \$31.99



SQL FROM THE GROUND UP

by Mary Pyefinch

Get a grip on today's most powerful language for manipulating and querying databases. Marketing professionals and high-level and novice programmers can all benefit from the building-block approach to SQL in relation to Oracle PL/SQL, Transact SQL and other database applications. (Osborne)

Pub. Price: \$34.99
Discount 20%
Our Price: \$27.99

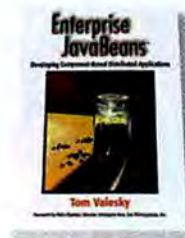


ENTERPRISE JAVABEANS™

by Tom Valesky

Aspiring Enterprise JavaBeans programmers who want to handle real-world programming challenges will find the resource they need in this example-filled guide, which serves as both an introduction and tutorial to Enterprise JavaBeans (EJB). The CD-ROM contains code samples and a demo copy of the WebLogic EJB Server. (Addison-Wesley)

Pub. Price: \$39.99
Discount 20%
Our Price: \$31.99



DEPLOYING MICROSOFT® SQL SERVER™ 7.0: NOTES FROM THE FIELD

by Microsoft Corporation

Determine the most effective database application for your organization with step-by-step details on deploying SQL 7, including proven scenarios for creating e-commerce sites, data marts and mobile computing solutions. (Microsoft Press)

Pub. Price: \$39.99
Discount 20%
Our Price: \$31.99



NETWORK PROGRAMMING FOR MICROSOFT® WINDOWS®

by Anthony Jones & Jim Ohlund

The authors, members of Microsoft's NetAPI Developer Support team, have created the definitive single-source reference for the network programming interfaces available on Windows 98, Windows NT/2000 and Windows CE platforms. Increase productivity with practical, platform-specific information and ready code examples. (Microsoft Press)

Pub. Price: \$49.99
Discount 20%
Our Price: \$39.99



MICROSOFT® BACKOFFICE® SMALL BUSINESS SERVER 4.5 RESOURCE KIT

by Microsoft Corporation

Direct from the BackOffice Small Business Server development teams comes the ultimate tool for Windows NT networked systems. This integrated product (with CD-ROM) provides the essentials that administrators need for optimal performance. (Microsoft Press)

Pub. Price: \$69.99
Discount 20%
Our Price: \$55.99



GET CISCO CERTIFIED & GET AHEAD

by Anne Martinez

Zooming in on Cisco-related certifications, the author of the highly-praised *Get Certified & Get Ahead* now answers the most frequently asked questions about one of today's most popular and prestigious certifications. Comprehensive, authoritative and user-friendly, this one-stop resource is also Web-enhanced with constantly updated Web site support. (Osborne)

Pub. Price: \$24.99
Discount 20%
Our Price: \$19.99

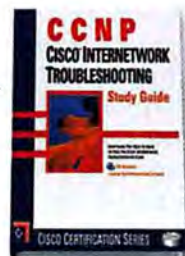


CCNP: CISCO® INTERNETWORK TROUBLESHOOTING STUDY GUIDE, 1ST EDITION

by Kevin Hales, Todd Lammle & Robert Padjen

Cisco Certified Network Professional candidates and network administrators can ensure that their second step on the road to CCIE certification is a productive one with a focused study guide that covers all four exams and objectives. CD-ROM includes custom test prep software. (Sybex)

Pub. Price: \$49.99
Discount 20%
Our Price: \$39.99



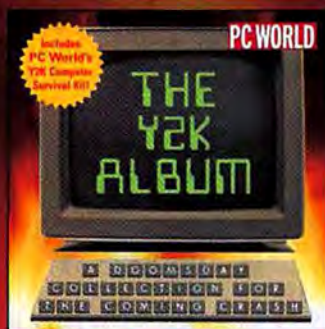
BARNES & NOBLE

shop online at bn.com or visit our stores

DECCA

PC WORLD

Decca Records and PC World proudly present:

THE
Y2K
ALBUMA Doomsday
Collection for
the Coming Crash

289 486 649-2 CD

Beware...take care!
Pull the plug before your
computer says "Good-bye"
on December 31, 1999
at 11:59:59, when the
millennium bug strikes
and wipes out hard drives
around the world!

What would be better
than to celebrate the end
of the computer world
as we know it than with
the perfect classical
music soundtrack:
THE Y2K ALBUM -
A Doomsday Collection
for the Coming Crash.

Includes "doom-inspiring" music
of *Carmina Burana*, *2001 Theme*,
The Valkyries, *Star Wars Battle*,
and many others

CD available from Connect2Music.com

connect2music

DECCA

©1999 Decca Records/Universal Classics Group
<http://www.decca.com>

PC WORLD

EDITORIAL

EDITORIAL DIRECTOR Cathryn Baskin
MANAGING EDITOR Luis Camus
ART DIRECTOR Robert Kanes
EXECUTIVE EDITORS Tracey Capen, Yael Li-Ron,
Bill Snyder, Daniel Tynan
ASSISTANT MANAGING EDITOR Kimberly Stein
SENIOR EDITORS Anita Epler, Brad Grimes, Karl
Koessel, Dan Miller, Shane Rau, Randy Ross
SENIOR WRITER, FEATURES Harry McCracken
SENIOR ASSOCIATE EDITORS Yadena Arar,
Cameron Heffernan, Michael S. Lasky,
Laurianne McLaughlin, Karen Silver,
Alan Stafford, Anush Yeghazarian
ASSOCIATE EDITORS Grace Aquino, Andrew Brandt,
Michelle Campanale-Surkan, Aoife M. McEvoy,
Kim Zetter
STAFF EDITOR Mick Lockey
EDITORIAL ASSISTANT Kalai Murugesan
SENIOR COPY EDITORS Stephen Compton,
Steven Gray, Barbara Lewis
COPY EDITORS David Hayward, Carol Pragides
COPY EDITOR/RESEARCH EDITOR Jean Lieske
RESEARCH EDITOR Nicole Stefanko
EDITORIAL PRODUCTION ASSOCIATE Henry Pham
ASSISTANT TO EDITORIAL DIRECTOR Linda L. Grubbs
ADMINISTRATIVE ASSISTANT Heather Morra
BUSINESS MANAGER Heidi Anderson

ART AND DESIGN

ASSOCIATE ART DIRECTORS Barbara Adamson,
Tim J. Luddy
ASSISTANT ART DIRECTORS Kate Godfrey,
Carolyn Perot
SENIOR DESIGNER, INFOGRAPHICS Jeff Berlin
SENIOR DESIGNER Beth Kamoroff
ASSISTANT DESIGNER, INFOGRAPHICS Robin Briskin
PRODUCTION ARTIST Marlene Tobias

CONTRIBUTING EDITORS

Steve Bass, George Campbell, Scott Dunn, Roberta
Furger, Judy Heim, Stephen Manes, James A.
Martin, Stan Miatkowski, Lincoln Spector, Scott
Spanbauer, Kirk Steers, Carla Thornton, John
Walkenbach, Christina Wood

PC WORLD TEST CENTER

TEST CENTER DIRECTOR Julian Milenbach
ASSOCIATE TEST CENTER DIRECTOR Ulrike Diehlmann
MANAGER, BENCHMARK DEVELOPMENT William L.
Rinko-Gay
TEST MANAGER Nancy H. Miller
PERFORMANCE ANALYSTS Robert P. James, Elliott S.
Kirschling, Jeffrey Kuta
TEST CENTER COORDINATORS Christopher B.
Patterson, Julian Weatherby

PC WORLD ONLINE

EDITOR IN CHIEF Steve Fox
MANAGING EDITOR Rebecca Freed
EXECUTIVE EDITOR, NEWS Eric Bender
SENIOR EDITOR, NEWS Peggy Watt
SENIOR EDITOR, REVIEWS Rex Farrance
SENIOR REPORTER John Spooner
ASSOCIATE EDITOR, REVIEWS Gregory Frame
ASSOCIATE EDITOR, HERE'S HOW Matthew Newton
STAFF EDITOR Liane Gouthro
COPY CHIEF Kim Saccio-Kent
EDITOR/REPORTERS Cameron Crouch, Alexandra
Krasne, Tom Spring
ASSISTANT EDITOR Arin Hailey

PCW COMMUNICATIONS

PRESIDENT'S OFFICE Jeff Edman, Publisher;
Cathryn Baskin, Editorial Director;
Vicki Peilen, COO/CFO;
Richard Willoughby, Senior VP

PUBLISHER, PC WORLD ONLINE Thomas Gewecke
VP, CIRCULATION Shawne Burke Pecar
VP, CHIEF INFORMATION OFFICER Henri Froissart
VP, RESEARCH Bettina Eichel

PC WORLD GLOBAL PRODUCT LINE Nancy L. Jacobs

FOUNDER David Bunnell
FOUNDING EDITOR Andrew Fluegelman

SUBSCRIPTION SERVICES

PC World Subscriber Services, P.O. Box 55029,
Boulder, CO 80322-5029
INTERNET: [www.pcworld.com/resources/subscribe/
customer_service](http://www.pcworld.com/resources/subscribe/customer_service)
E-MAIL: pcwhelp@neodata.com
PHONE: In U.S., other than CO 800/234-3498
In CO and outside U.S. 303/604-1465
New orders 800/825-7595

MAIL AND ONLINE

PC World Editorial, 501 Second St. #600, San Fran-
cisco, CA 94107
PHONE: 415/243-0500
FAX: 415/442-1891
E-MAIL: letters@pcworld.com
COMPUSERVE: go pcworld
WORLD WIDE WEB: www.pcworld.com

QUESTIONS AND SUBMISSIONS

Send material electronically to the appropriate
online address listed below or mail it to PC World.
We reserve the right to edit letters. PC World pays
\$50 for published *Here's How* tips and questions;
accepted submissions will be acknowledged by pay-
ment. Editors cannot guarantee personal responses
to all questions.

ANSWER LINE: answer@pcworld.com
BUGS AND FIXES: bugs@pcworld.com
CONSUMER WATCH: consumerwatch@pcworld.com
FULL DISCLOSURE: steve@cranky.com
GOT A PROBLEM? got_a_problem@pcworld.com
HARDWARE TIPS: kirk_steers@pcworld.com
HOME OFFICE: steve_bass@pcworld.com
INTERNET TIPS: judy_heim@pcworld.com
LETTERS: letters@pcworld.com
ON YOUR SIDE: onyourside@pcworld.com
SPREADSHEETS: john@j-walk.com
UPGRADE GUIDE: stan_miatkowski@pcworld.com
WINDOWS NT: nttips@spanbauer.com
WINDOWS TIPS: scott_dunn@pcworld.com
WORD PROCESSING: george_campbell@pcworld.com

NEW PRODUCT ANNOUNCEMENTS

Please address press releases to *New Products* at PC
World, or call 415/978-3212.

REPRINTS AND PERMISSIONS

You must have permission before reproducing any
material from PC World. Write to PC World, Reprints
and Permissions, 501 Second St. #600, San Fran-
cisco, CA 94107; include a phone number. To order
reprints of your company's editorial coverage in PC
World, call 717/399-1900 ext. 129.

BACK ISSUES

PC World issues and article copies are on microfilm
and microfiche from UMI, 300 N. Zeeb Rd., Ann
Arbor, MI 48106-1346; 800/521-0600.

MAILING LISTS

Occasionally we make our subscribers' names avail-
able to other companies whose products may inter-
est you. To have your name excluded from these
mailings, send a request with your mailing label to
Subscriber Services, P.O. Box 55029, Boulder, CO
80322-5029.

See What You've Myst

Since 1993, over 5 million people have forgotten their everyday worries, finding themselves captivated by Myst's intriguing adventure and stunningly beautiful environments. In doing so, they have made Myst the best-selling computer game of all time.

Now this timeless classic has been revamped with a host of new and improved features. **Myst: Masterpiece Edition** includes stunning graphics in all new 24-bit color, digitally remastered audio and video, and, most importantly, the addition of our proprietary DigitalGuide™ help technology. The DigitalGuide makes the game playing experience more accessible and less intimidating for players of any skill level.

So, whether you've never played Myst before or you've played, but never fully experienced this classic, now is the time to see what you've missed.



**UPDATED VERSION
NEW FEATURES!!**

MYST
MASTERPIECE EDITION

Current Myst Owners: Look for \$10 upgrade rebate on box

www.mystworlds.com

Copyright 1993, 1999 Cyan, Inc. and The Learning Company, Inc. and its subsidiaries. All rights reserved. Myst and Cyan are registered trademarks of Cyan, Inc. Red Orb Entertainment and DigitalGuide are trademarks of Learning Company Properties Inc.



Circle 212 on card or go to www.pcworld.com/productinfo

Are you doing business at



Processing, please wait...

Or at the pace

the speed of the Internet?



If you want to truly maximize your e-business investment, be sure your PCs aren't holding you back. The Intel® Pentium® III processor has remarkable performance capabilities. It is primed, ready and optimized for e-business—so your company, its people and their PCs can make the most of everything the Internet has to offer. It has the power to run sophisticated compression, encryption and anti-virus software behind the scenes without compromising productivity. And it has the performance headroom you'll need to handle the next generation of Web applications. Put some extra muscle behind your company's e-business investment—with the Pentium III processor. *Information on Intel products and the year 2000 is available on our Web site.*

→ intel.com/IT

of your PCs?

intel®

Our passion for engineering a true year-round convertible is evident from the top down.



The Chrysler Sebring JXi Convertible is designed to be driven every day of the year. Just one of the reasons Sebring Convertible won Strategic Vision's 1999 Total Quality Award™ for "Best Ownership Experience" in its class.* That makes three years in a row. What else would you expect from America's best-selling convertible? Call 1.800.CHRYSLER or visit us at www.chrysler.com (year-round, of course).



ENGINEERED TO BE GREAT CARS

CHRYSLER SEBRING

*Sebring won in 1997, 1998 (tie) and 1999. Strategic Vision's 1999 Vehicle Experience Study™ surveyed 33,760 Oct.-Nov. new vehicle buyers of 200+ models after the first 90 days of ownership. Sebring was the winner in convertibles under \$30,000 class.

AOL vs. Microsoft vs. All of Us

THREE YEARS AGO, America Online introduced its Instant Messenger service for the Web, which lets its subscribers find friends—aka *buddies*—online and communicate with them in real time. Since then, the use of instant messaging has soared. Today, over 80 million people use AOL's messaging systems—AOL Instant Messenger and ICQ—to send over 750 million messages a day. That's a stagger-

ing amount of mail: nearly 12 times more than its conventional e-mail traffic, says AOL, and more mail than the U.S. Postal Service delivers.

Microsoft, Yahoo, Prodigy, and others recently introduced their own instant messaging software—with a twist. Microsoft's MSN Messenger, introduced in late July, and the other new services let customers send messages to people who use the new software *and* to those who use AOL's messaging software. By contrast, people with AOL Instant Messenger can communicate only with those using the same software.

Here's how Microsoft did it. The new MSN Messenger uses a customer's free Hotmail account along with free software that users download from Microsoft's Web site. An AOL Instant Messenger user who downloads Microsoft's software enters their AOL screen name and password and imports their existing buddy list. The Microsoft software then logs on to AOL's network servers to send messages to other AOL users.

Outraged by what it called Microsoft's "hijacking" of its customers, AOL changed its communications protocols and blocked Microsoft's and other competitors' access to its servers. Not to be outmaneuvered or outprogrammed, Microsoft's coders found back doors into AOL's servers. Each time Microsoft reconnected to the servers, AOL blocked access again. At last count, Microsoft had changed its software at least 12 times. Because Yahoo's and Prodigy's messaging software communicates with AOL's servers in a different way, those services haven't been able to reconnect.

DRAWING THE BATTLE LINES

AS THE PLOT UNFOLDS, both AOL and Microsoft are slinging accusations and lining up allies. The number one Internet service provider charges Microsoft with unauthorized hacking and



The AOL-Microsoft messaging battle is just the latest round in a protracted war for dominance of the Internet.

endangering customers' security and privacy by requesting their names and passwords. On the other hand, the number one software maker charges AOL with disservice to users, preventing people with different messaging systems from communicating with each other.

AOL has insisted that it will work with an industry task force to develop an open messaging standard. It has also formed a working committee of its own, aligning with Apple, Novell, RealNetworks, Sun, and others. In the absence of an open standard, AOL is also licensing its messaging system, which uses a proprietary protocol, to other Internet service providers, including EarthLink and MindSpring.

Microsoft has lined up allies of its own, including AT&T, Excite, Infoseek, Prodigy, and Yahoo. This group argues that until an open messaging standard is developed, AOL should stop blocking its servers.

Most observers agree that an open messaging standard will be developed in the not-too-distant future, possibly sometime later this year. Meanwhile, it's not clear whether a short-term solution can be found or if people will continue to need multiple messaging systems to talk to their friends and colleagues.

INTERNET USERS, BEWARE

ANALYSTS HAVE BEEN quick to point out that the current AOL-Microsoft messaging battle is just the latest round in what will become a protracted war for dominance of the Internet. The reason: AOL's huge market share in Internet service and software makes it possible for the service to become a viable software alternative to Microsoft's Windows.

The next battleground, many say, will be Internet access. AOL currently charges its 17 million-plus customers \$22 per month for use of its service and content. Analysts estimate that these access fees account for about two-thirds of AOL's revenue.

Microsoft's MSN trails far behind, with just 2 million Internet access customers. As part of its efforts to overtake America Online, Microsoft plans to move toward cheaper, possibly even free, Internet access. Already, the company has struck deals with system vendors to offer customers \$400 rebates on personal computers in exchange for their signing three-year service contracts with MSN. The company reports that this latest program has increased MSN's subscription rate by 50 percent.

Expect both industry giants to fight hard—and dirty—in the coming years. And hope you don't get caught in the cross fire.

Cathryn Baskin is editorial director of PC World.



Full-Impact DVD. Experience the excitement of DVD-ROM with Toshiba's new Satellite® 4000 Series. With 14.1" dia. TFT active-matrix displays, Toshiba's 3D Sound System with Stereo Bass Reflex speakers and more, it's the ideal combination of performance, multimedia and exceptional value.



Performance. Rocketing Intel® Pentium® II or Intel Celeron™ processors up to 400MHz with as much as 256KB on-die Level 2 cache make these the fastest Satellite 4000 Series portables ever. With hard drives up to 6.4 billion bytes and up to 64MB of SDRAM you get topline performance that's attentive to your bottom line.



Portability meets accountability.



All-in-one design. Built into every durable notebook you'll find DVD-ROM, hard disk, diskette drive and a high-speed V.90/K56flex modem.* There's no need to swap or carry around extra components. So your investment yields maximum productivity and portability in one convenient package.



Expansion. Easy, one-touch peripheral connections through an optional port replicator make the Satellite 4000 Series the only computer you need for both on the road and in the office. See why it equals the best notebook value ever. Call 1-800-TOSHIBA or click on www.toshiba.com.

TOSHIBA

The World's Best Selling Portable Computers.



Satellite® 4100X DVD

- Intel® Mobile Pentium® II processor 400MHz
- 6.4 billion byte hard disk drive
- 14.1" dia. TFT active-matrix color display
- 64MB Synchronous DRAM
- Built-in DVD-ROM
- Integrated V.90/K56flex modem¹
- 3D Sound System
- Windows® 98 or Windows NT operating system

\$2,599

Business Lease \$81/mo, 36 mos²



Performance plus price
equals unbeatable value.



Satellite 4090XDVD

- Intel Mobile Celeron™ processor 400MHz
- 6.4 billion byte hard disk drive
- 14.1" dia. TFT active-matrix color display
- 64MB Synchronous DRAM
- Built-in DVD-ROM
- Integrated V.90/K56flex modem
- 3D Sound System
- Windows 98 or Windows NT operating system

\$2,299

Business Lease \$71/mo, 36 mos²

Satellite 2590CDT

- Intel Mobile Celeron processor 400MHz
- 6.4 billion byte hard disk drive
- 12.1" dia. TFT active-matrix color display
- 64MB Synchronous DRAM
- Built-in 24X³ max. speed CD-ROM
- Integrated V.90/K56flex modem
- 3D Sound System
- Windows 98 operating system

\$1,699

Business Lease \$53/mo, 36 mos²

Equium™ 7100 Series

- Intel Pentium III processor 500MHz
- 128MB high performance Synchronous DRAM
- 12.9 billion byte hard disk drive
- 40X⁴ max. speed CD-ROM
- Integrated 3Com Fast EtherLink® XL 10/100
- Instant Access Door for improved upgradeability and serviceability
- Value Keyboard
- Windows 95 operating system
- Slimline chassis with 3 drive bays and 2 slots
- Desktop chassis with 5 drive bays and 4 slots

\$1,349⁵

Business Lease \$42/mo, 36 mos²

7100S: PV1045U-8XEL2

7100D: PV1046U-8XEJ2

Equium 7100 Series

- Intel Pentium III processor 450MHz
- 128MB high performance Synchronous DRAM
- 8.0 billion byte hard disk drive
- 40X max. speed CD-ROM
- Integrated 3Com Fast EtherLink XL 10/100
- Instant Access Door for improved upgradeability and serviceability
- Value Keyboard
- Windows 95 operating system
- Slimline chassis with 3 drive bays and 2 slots
- Desktop chassis with 5 drive bays and 4 slots

\$1,099⁵

Business Lease \$34/mo, 36 mos²

7100S: PV1045U-6VEL2

7100D: PV1046U-6VEJ2

Equium 7100 Series

- Intel Pentium II processor 400MHz
- 64MB high performance Synchronous DRAM
- 6.0 billion byte hard disk drive
- 40X max. speed CD-ROM
- Integrated 3Com Fast EtherLink XL 10/100
- Instant Access Door for improved upgradeability and serviceability
- Value Keyboard
- Windows 95 operating system
- Slimline chassis with 3 drive bays and 2 slots
- Desktop chassis with 5 drive bays and 4 slots

\$949⁵

Business Lease \$30/mo, 36 mos²

7100S: PV1045U-D34J0

7100D: PV1046U-D34J0



Magnia™ 3010 Series

- Intel Pentium III processor 450MHz with dual capability
- 128MB ECC SDRAM, 1GB max.
- Four hot swap drive bays
- One hot plug power supply standard; optional additional power supply N+1 redundancy and load sharing available
- 32X CD-ROM SCSI and 3.5" floppy disk drive
- Integrated 10/100 Ethernet
- 3 year on-site warranty

\$2,348

Business Lease \$73/mo, 36 mos²

SYU3600U-0002

Toshiba M500

- Intel Pentium III processor 450MHz with single capability
- 128MB ECC SDRAM, 1GB max.
- Ultra2 SCSI (LVD) Controller
- Supports up to 4 hard disk drives
- 6 I/O expansion slots, AGP PCI graphics adapter with 8MB DRAM, NIC
- 32X CD-ROM IDE and 3.5" floppy disk drive
- Integrated 10/100 Ethernet
- 90 day carry-in warranty (upgradeable)

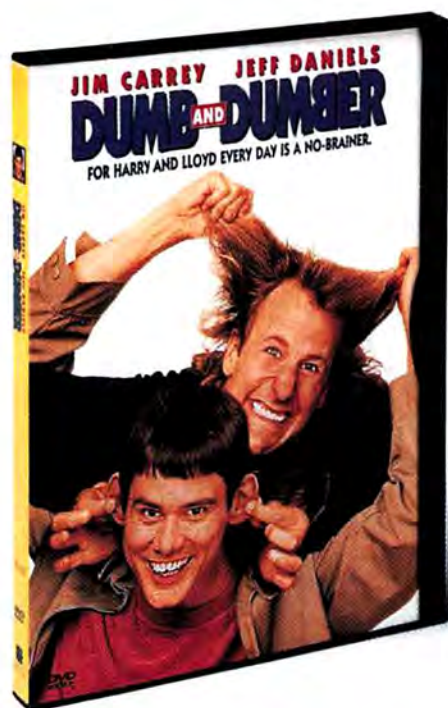
\$1,379

Business Lease \$43/mo, 36 mos²

SYU3100U-0002

Run the numbers for yourself. Call 1-800-TOSHIBA or visit www.toshiba.com.

TOSHIBA



Buy one DVD Get one free

(A reminder: We do have over 2,500 different titles to choose from.)

Yo. Einstein. Get on-line at Reel.com and you'll find not only every DVD made, but a great offer along with it. And a staggering list of over 100,000 titles on VHS, all at the lowest price on-line, guaranteed.

Simply enter "FreeDVD" in the coupon code box when you buy your next DVD, and we'll e-mail you a \$20 gift certificate. Get it?

www.Reel.com 
The best place to buy movies.™

YOUR TAKE ON: Tech support headaches ♦ AOL and spam ♦ Printer ratings

TECH SUPPORT:
'IT'S YOUR PROBLEM'

I WHOLEHEARTEDLY agree with Stephen Manes's article about tech support [*Full Disclosure*, August]. I have had similar experiences with support. Manes, however, failed to mention a common tech support strategy: passing the buck. When I call the manufacturer, I'm told that the problem is the fault of the ISP or the phone company. I contact the ISP and am told the fault lies with the phone company or the manufacturer. Finally, I contact the phone company, which tells me that whatever it is, it's not their problem.

Thomas Smith, Gallipolis, Ohio

IF MANES WAS having trouble with sparse documentation (and haven't we all?), maybe he should have read up on his

drive before buying it. Magazine and Web reviews usually mention documentation and telephone support policies. As a last resort, call your local computer guru (hey, everyone knows one, right?) and ask for jumper settings.

Then again, how about going back to good old-fashioned trial and error?

The advice tech support gave him on his USB cable—"leave the cable plugged in"—sounds good to me. Why pull out cables willy-nilly, anyway?

My advice: Try to learn enough to be your own tech support person, and don't rely on others to solve your problems.

Chris Fritz, Champlin, Minnesota



LIKE MANES, I am getting darn tired of waiting for half an hour on a long-distance phone call for "free" tech support, or paying per incident to get a company's help fixing a glitch that it created.

PC World can play an important role in resolving this problem: Just keep

rating the quality and accessibility of tech support for both software and hardware. I will look at these sections most carefully before I make a purchase.

Sheldon Wolf, Los Angeles

MANES OFFERS balm to millions of us PC users who are totally disgusted with an industry that boxes and ships equipment not ready to run properly—if at all.

I selected a vendor based on its reputation for tech support, thinking I'd be in good shape when the PC arrived.

What I got was six months of nightmares: wrong drivers installed, software so misconfigured that the Windows OS was damaged, and the list goes on. I'd bet anything that the units coming off the assembly line ahead of and behind mine had exactly the same problems and that none were tested for quality control.

What we need to help shape up this industry is to rate manufacturers not on how quickly they answer the phone but rather on how much tech support is needed for their products.

Don Napier, Corpus Christi, Texas

COMPANIES COULD cut way back on tech support if they would simply provide a little documentation. I seriously doubt whether Michael Dell or Bill Gates has any idea how frustrating it is to get a product with no instructions.

I just purchased a new system from Dell that is loaded with Microsoft Office software. The only documentation I got, beyond the basic setup instructions, was a Microsoft Mouse booklet (2 pages in English), a booklet on using Win 98, ►

HOT BUTTON

Could AOL Do More to Fight Spam?

IN THE AUGUST issue, Roberta Furger attacks America Online and its tactics for fighting porn spam (*Consumer Watch*). But what about educating people as to solutions?

Here's one simple solution: filters! Many online services offer filtering software, albeit sometimes for a fee.

Here's a second: Net site-blocking software.

Here's a third: Tell your kids the truth. If you explain there are such things as pornography, they'll more than likely understand. And kids, talk to your parents. Let them know when and if you receive e-mail messages you don't like or don't understand.

Steven D. Shaw
Maryland Heights, Missouri

AOL HAS THE WORST spam-fighting tools in the industry. Its TOSspam address is useless. I've never seen any indication that the company has taken action.

But saying that "the service now relies too heavily on using technology to combat spam" suggests this is a bad thing. Why? Many plug-ins allow your mail engine to search for character strings like "XXX" and "porn,"

and delete the message automatically.

The problem is that AOL doesn't take technology far enough: It won't use the industry standard mail protocol, instead opting for its own proprietary version, which prevents these plug-ins from functioning.

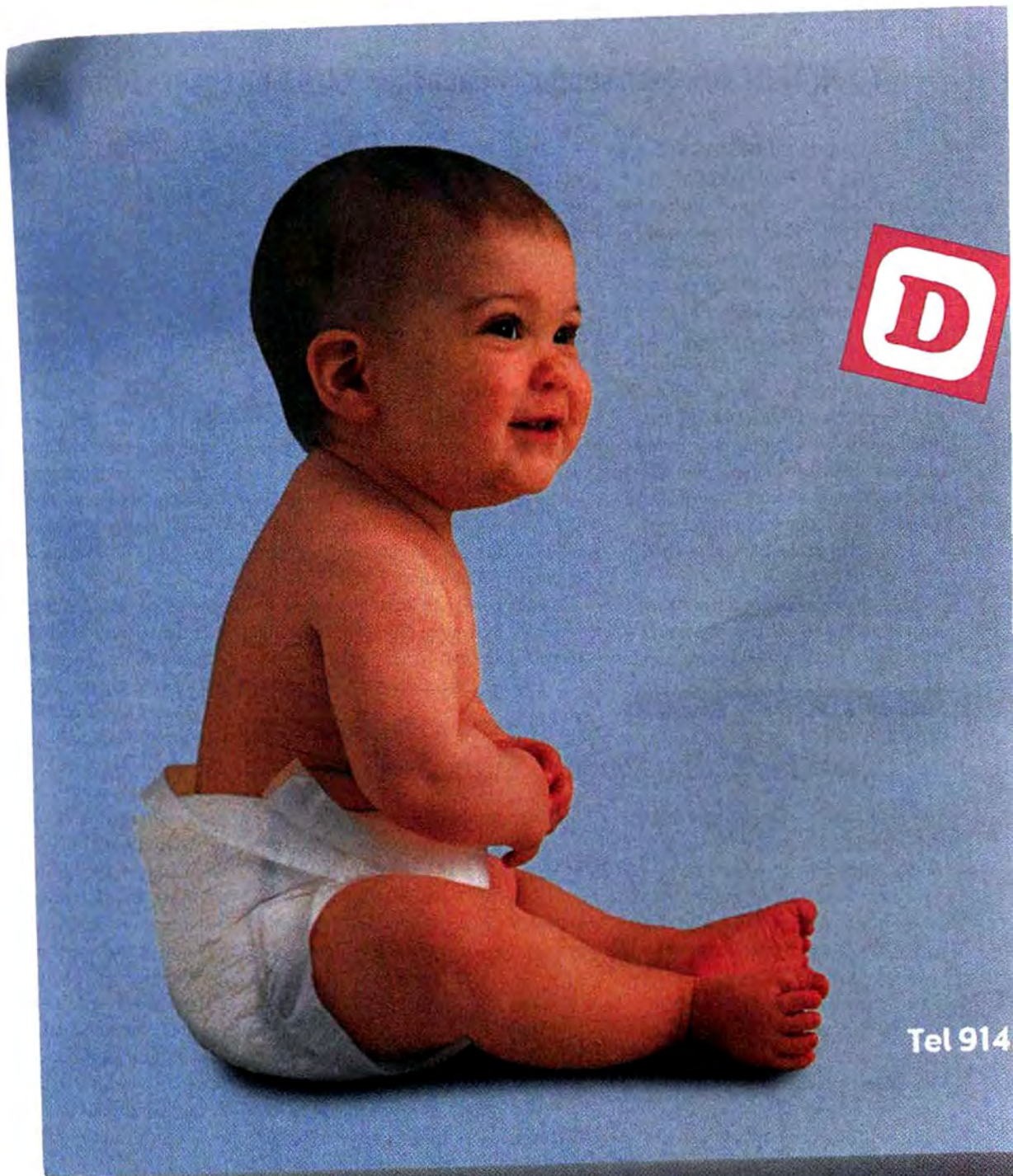
Norman Martens
Fairfield, California

I ENJOYED your article until you implied that mailing lists are spam. Your comment that "some people enjoy receiving spam... anyone who does can simply subscribe to Internet mailing lists" is very offensive to legitimate mailing-list operators. Every single person on my mailing list has chosen to accept mail from me. I have never made my recipients' addresses available to others, and I never will.

William Byrd, via the Internet

IF YOU DON'T USE chat rooms and message boards, you don't get junk e-mail! Anyone can live well by using only e-mail and instant messages.

Peter Seligman, St. Louis



Tel 914

He was a bright-eyed go-getter on the corporate fast track. But there were land mines everywhere he stepped. From scheduling conflicts to shipping mishaps to inventory question marks. So instead of tearing his hair out, he summoned his favorite IS guy, who cleverly suggested a more productive remedy: FileMaker® Pro.

worldwide

I A P E R

C O N S O L I D A T E D

Jeremy Segall

Distribution Manager

(and database wiz)

2004 Hancock Place White Plains, NY 10533

.3490 Fax 914.555.3491 Email jsegall@wwdiaper.com

With just garden-variety computer skills, he was able to transform years of professional experience into a custom-made database his entire department could easily access. And one he could proudly smile about. Visit us at www.filemaker.com. *What's your problem?*™



COMING UP

IN NOVEMBER

UPGRADES THAT PAY OFF

Even in the age of cheap PCs, the best bargain may be the system you already own—bolstered with the right gear. We tell you how to amp up your computer.

SPAM CONFIDENTIAL

Who's selling your good name? Are you putting yourself at risk? We investigate the business of spam and offer tips to avoid becoming an easy mark.

YOU AND THE NET AND THE MUSIC

No more trips to Tower Records. Forget Amazon.com. New technologies revolutionize the ways you can acquire and listen to music online.

SCREEN PLAY: 17-INCH MONITORS

It's a flat world after all: Six of our Top 10 17-inch monitors boast the new flat CRT that cuts glare and distortion. Prices have flattened too—pick up either of our Best Buys for under \$375.

CHEAPSKATE NOTEBOOKS

You can scrimp on price without skimping on performance or buying from an unknown: For less than \$1700, you can pick up a portable from the likes of Compaq, IBM, and Sony.

ALSO NEXT MONTH

► **The PC World Top 100:** The best Power, Midrange, and Budget desktop PCs; Notebooks; Home PCs; Printers; Scanners; Monitors; Graphics Boards; and Modems.

► **Here's How:** Hardware Tips on heading off an IRQ-some install, Windows Tips on disabling start-up apps, Answer Line on bootless hard drives.

PC WORLD

and a pretty good (29-page) manual on the monitor. Not a damn thing about how to use Word, Excel, or any other software. Online manual? Sorry, all you get is an idiotic paper clip that hasn't answered a single question. Yes, there are wizards, but they don't do you much good if you don't know what the software is supposed to do in the first place. Oh, for the days of my Apple IIe documentation.

Fortunately, a trip to the bookstore yielded some relief—an excellent book, by Microsoft, for another \$30.

Ronald Whitney

Maple Plain, Minnesota

DID WE PRINT CLEARLY?

IN YOUR August *Top 10 Printers* ratings, your evaluations seem contradictory. The Epson Stylus Photo 700 and the Lexmark 3200 are Best Buys while the higher-priced HP 882C finishes third. You call the Epson slow; the Lexmark, slow and not sturdy. In contrast, the HP (which I own) provides "impressive print quality on both text and graphics; fastest speeds on the SOHO chart, but somewhat high price keeps it from the top spot." Ironically, in the same issue, under "Printers for \$80? Check the (Not So) Fine Print" [*Top of the News*], readers are advised "you usually get what you pay for." Consistency, please!

Gary Bernard, Gladstone, Michigan

Editor's response: Normally, you do get what you pay for. But with our August Best Buys, you actually get more. In comparison to these two units, the HP DeskJet 882C is overpriced for what it delivers. With low-end ink jets, like those reviewed in *Top of the News*, you pay (and usually get) far less. Even there, though, we found one model—the Lexmark Z11—that offered good value. —Karen Silver

LCD MONITORS

AFTER READING the August monitor review ["LCD Monitors: Light, Slight, and Stylish"], I thought of an additional criterion for your evaluations: adjustability, which seems lacking in many models.

The shorter depth of LCDs does not automatically translate into a better footprint or easier physical installation. Many office cubicles include overhead shelves or lights that reduce the vertical clearances

around the desktop. Similarly, many people with home offices use computer hutches from office supply superstores. If you can't adjust the depth-to-height ratios on an LCD pedestal, the new LCD panel may not fit into the hutch's recess.

The best LCD pedestals will be adjustable for height, depth, and viewing angle.

Russ Urdahl, Suisun, California

PC World welcomes your letters to the editor. See page 14 for contact information. ■

CORRECTIONS AND CLARIFICATIONS

IN "TROUBLESHOOTING Is My Business" (August), the URL for the *usbready.exe* utility changed as we went to press; it is now www.usb.org/data/usbready.exe.

In the August *Bugs and Fixes*, a sentence incorrectly implied that Internet Explorer 5 installs Outlook 98; the sentence should have read: "If you use Windows NT 4.0 and have installed Service Pack 4 and IE 5, you won't be able to install Outlook 98."

In August, we ran an item in *On Your Side* about Quantex BIOS upgrades. At the time, we couldn't find any warning on the company's Web site that such updates can damage motherboards and void user warranties. Since then, points out Eric Offenber, customer relations manager, Quantex has added a "plain English" explanation to the current disclaimer, viewable at www.quantex.com/frames/community/support/aboutsup.htm. It states, in part, "BIOS updates can be completed but are done at the risk of the customer and can void your warranty."

Also, in response to the same column's Letter of the Month, we said Micron's policy is to replace a computer that suffers three hardware problems. In fact, its policy is to review such systems and consider them for replacement on a case-by-case basis. Micron does not automatically replace these PCs.

PC World regrets the errors.

SPECIAL OFFER

Y2K ON A SILVER PLATTER

MILLENNIUM MADNESS driving you crazy? Decca's *Y2K Album*—featuring PC World's exclusive Year 2000 Survival Guide—can get you in the mood for the meltdown. Go to www.pcworld.com/y2k/y2kalbum.

PerfectFlat™ technology looks better with... Intel Inside®... ViewSonic® on top!

Selecting the right PC is only half the battle. Today, how you top it off is just as important. Innovations like multimedia monitors, flat panel displays and large screen CRTs are changing the old phrase "Monitor Sold Separately" to "PC Sold Separately".

Take the new ViewSonic GF775 17" (16.0" viewable) monitor for example. This is the first 17" (various viewable) flat-screen CRT utilizing **PerfectFlat** technology to provide your Visual Computing Experience™ with precise, clear images. The GF775 provides an ultra-fine .24mm stripe pitch and 1600 x 1200 maximum resolution.

At ViewSonic, we offer the #1 best selling monitors and flat panel displays in the USA*. Buy with confidence from the company that's won over 550 industry awards. The GF775's warranty covers 3 years parts and labor. Plus 24 hour customer service, 7 days a week.

For more information on the company that's won over 550 industry awards, visit our website at: www.ViewSonic.com/pcworld



(PC Sold Separately)



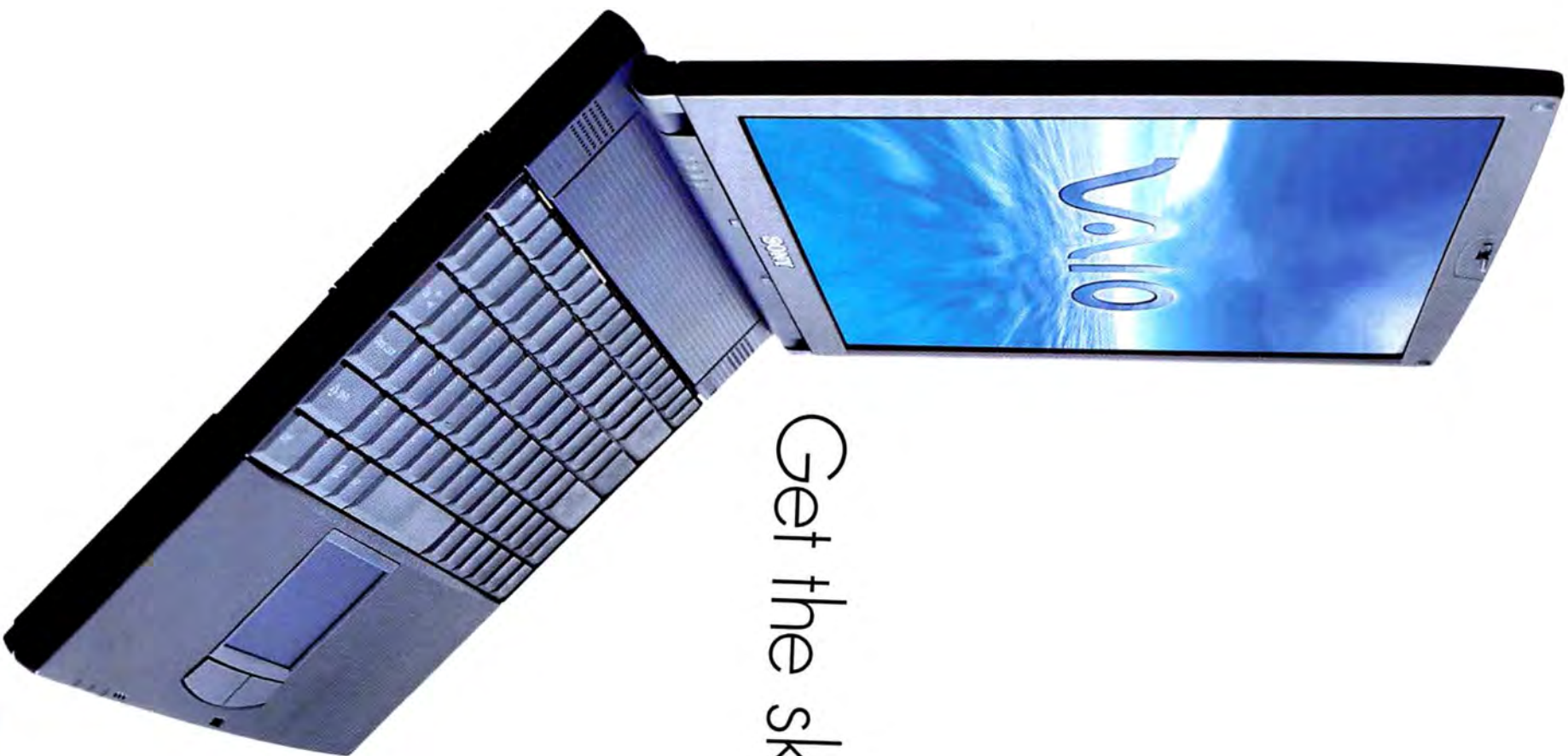
(800) 888-8583 *Stanford Resources, Inc. Quarterly Monitraz Report Q1 '99 and Display Search Quarterly Supply vs. Demand Study CRT's Q1 '99 LCD Monitors, Q1 '99. Specifications subject to change without notice. Copyright © 1999, ViewSonic Corporation. All rights reserved. Corporate names and trademarks stated herein are the property of their respective companies. Intel and the Intel Inside logo are registered trademarks of Intel.



www.ViewSonic.com



©1999 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Prices, specifications and promotions are valid only in the U.S. Prices and promotions do not include applicable sales tax or shipping and handling, and are subject to change without notice. Sony, VAO, i.LINK, Memory Stick, VAO Z505 SuperSlim Pro, the VAO logo and the Sony logo are trademarks of Sony. Sony VAO Direct and Sony Computer Loan are service marks of Sony. Intel, Celeron and Pentium are trademarks of Intel Corporation. All other trademarks are trademarks of their respective owners. †Due to FCC limitations, speeds of 53kpbs are the maximum permissible transmit power levels during download transmissions. Actual data speeds will vary depending on line conditions. **With the Sony Computer Loan Program, Sony Computer Loan terms: No money down, 15.43% ANNUAL PERCENTAGE RATE (APR) and 12.60% variable rate (18.0% Prime + 4.60% Spread) as of August 6, 1999, each subject to monthly increase. The monthly variable rate equals the prime rate published in the "Money Rates" table of The Wall Street Journal on the 1st business day of each month and remain in effect until subsequently changed. Eight-year term. On approved credit. The Sony Computer Loan is offered by Servus Financial Corp. Delivery options include overnight service, twoday delivery or ground service in the continental U.S. For Hawaii and Alaska, twoday delivery only. Shipping charges to and from the customer are not refundable. **Offer expires September 30, 1999. †Subject to carrier pickup and product/parts availability. All built-to-order notebooks are shipped from the Sony U.S. domestic configuration center. The C1 PictureBook ships within 24 hours and is not a built-to-order product. Note: Image on screen is simulated.



Get the skinny.

SONY

Deceptively thin, the new Sony VAIO Z505 SuperSlim Pro™ Notebook packs power into its 1" profile.

For starters, the 12.1" XGA display is one of the largest in its class. And the Z505 is loaded with built-in Ethernet, an Intel® processor and up to 128 MB RAM, so the only thing missing is extra weight. Programmable Power Keys (PPK) help you stay mobile, and with Sony's Memory Stick™ Media slot built right in, you can easily store and transfer images, sound and data. Best of all, at only 3.5 lbs., it will be your lightest travel companion. Get the notebook with enough power and style to accentuate yours, the Z505 SuperSlim Pro Notebook. Available now through Sony VAIO Direct.

SONY VAIO® NOTEBOOKS ARE BUILT
TO ORDER. NOTEBOOKS SHIPPED WITHIN
7 DAYS STRAIGHT FROM THE FACTORY.*

Receive 2,500 FREE frequent flyer miles from one of six major airlines (American, Continental, Delta, Northwest, United or U.S. Airways) with the purchase of a VAIO Z505SX or Z505S. (Offer expires 9/30/99)

Sony VAIO Direct™

BUY DIRECT

1-888-558-VAIO
www.sony.com/direct-pwz

VAIO

Features (both models):

- 12.1" XGA TFT Display
- 1" thin; 3.5 lbs.
- Built-in Ethernet (10Base-T/100Base-TX)
- 6.4 GB hard drive
- V.90/K56flex technology modem†
- High-capacity Lithium-Ion Battery
- One type II PC Card slot with Card Bus support
- Memory Stick Media slot
- Two USB ports
- Built-in stereo speakers
- Bundled i.LINK® Port Replicator and external floppy disk drive

Z505SX

\$2,799.99 (with \$100 rebate)**

As low as \$50.96 a month* (with the Sony Computer Loan)

- Mobile Intel Pentium® II processor 366 MHz
- 128 MB SDRAM

Z505S

\$2,199.99 (with \$100 rebate)**

As low as \$40.04 a month* (with the Sony Computer Loan)

- Mobile Intel Celeron™ processor 333 MHz
- 64 MB SDRAM (expandable to 128 MB max.)

Customize with:

Upgrade to 128 MB RAM add: \$200.00

Accessories (optional):

- CDROM Drive PCGA-CD51: \$299.99
 - Rechargeable Lithium-Ion Battery:
 - Triple-capacity PCGA-BPZ52: \$399.99
 - Standard PCGA-BPZ51: \$199.99
 - Port Replicator with i.LINK PCGA-UPR5: \$99.99
 - Monitor Adapter PCGA-DA5: \$49.99
 - AC Adapter PCGA-AC5Z: \$99.99
- (One AC Adapter included with unit.)

Introducing Sony BusinessDirect

Now you can buy Sony for your business the easy way—through Sony BusinessDirect. You'll find a wide array of Sony products for your company, plus finance options including leasing and open accounts to make it simple. We have a dedicated sales team just for our business customers. Visit Sony BusinessDirect today at www.sony.com/directbiz-pwz

If you want to totally
transform your PC

Turn on the POWER



ALL-IN-WONDER 128
ALL-IN-WONDER PRO

One powerful upgrade
does it all

- Capture and edit video
- Play 3D games
- Watch TV and DVD¹ movies on your PC
- Browse the Net on your big screen TV
- Schedule and record your favorite TV shows for later viewing, using the Digital VCR

Capture MPEG-2 video² in real-time and add to any business or school project with ALL-IN-WONDER 128

Choose the all-in-one solution that's right for your budget including PCI and AGP versions with 8, 16 or 32MB of memory

Totally transform your PC without the need for multiple expensive upgrades — one card does it all — visit ati.com today!



THE
POWER
OF SPEED



Visit ati.com

© Copyright 1999 ATI Technologies Inc. ATI, RAGE 128 and ALL-IN-WONDER are trademarks and/or registered trademarks of ATI Technologies Inc. Also Razer 2 © 1999 Creative Software International. Dependable © 1999 Razer Software LLC. All other company and product names are trademarks and/or registered trademarks of their respective manufacturers. ¹ DVD playback not available on PC system of ALL-IN-WONDER PRO. ² MPEG-2 capture requires ALL-IN-WONDER 128 and Pentium III system.

Cable Net Customers Fight the System

Controversial new policies and poor service prompt one city's customers to push for service standards.



DAN CALIC IS A MAN ON A MISSION. After months of suffering through access problems and long hold times for customer service, he's leading the charge to create the first-ever bill of rights for cable Internet customers.

What turned this home improvement salesperson from Fremont, California, into a consumer advocate? Frustration. Anger. And a determination to get what he paid for.

"We were not being taken care of," says Calic. "There's an old saying: If it ain't broke, don't fix it. Well, this was fairly broke."

It all started in March 1998, when Calic signed up for @Home cable Internet access through his local cable company, TCI (now AT&T Broadband & Internet Services). After a few fits and starts with the installation process, Calic found himself speeding along in the fast lane and loving every minute of the new service. "It was like going from a passenger car to an Indy 500 race car," he recalls.

As welcome as the speed boost was the fact that his connection was "always on"—that is, he no longer had to dial in every time he wanted to go Net surfing or check e-mail.

GOOD PRODUCT, BAD SERVICE

BUT THE HONEYMOON CAME to an abrupt end on November 12 when a mishandled cable system upgrade slowed access to a crawl for many Fremont customers. Many subscribers—Calic among them—couldn't log on to the system at all. To make matters worse, TCI's customer service staff was nearly impossible to reach—and was less than helpful for the lucky few who did get through.

"We had long waits on hold and were given inconsistent information," says Calic. "It was very, very frustrating."

@Home users who were able to log on began circulating e-mails and posting messages in newsgroups describing their problems with the service. Calic soon realized that his hometown had a sizable number of disgruntled users. That's when he proposed forming an @Home

user group in Fremont—one of several such groups that have sprung up throughout the country in response to users' frustrations.

IF IT'S GOOD ENOUGH FOR CABLE TV

ALTHOUGH THE ACCESS problems were resolved shortly after Calic's group held its first meeting, Fremont-area TCI @Home customers—and people in other cities—were still having problems getting through to the company's service staff.

That's when Calic read an item in his local newspaper about TCI's cable television unit being brought before the Fremont City Council for alleged violations of the city's customer service standards for cable television. Calic, like most cable subscribers, had had no inkling that such service standards even existed.

A little history: Because of the cost of laying wire and building the infrastructure, the cable industry grew up as a regulated monopoly. That is, most municipalities licensed the cable ▶

franchise to a single company. To ensure that cable companies remained responsive to customer needs, the federal government—and later, many cities and states—adopted customer service standards. These standards are fairly uniform, covering such areas as hours of operation; response time to connect new subscribers; and responses to repair requests and complaints.

In Fremont—as in most other cities—the cable television company is also the only cable Internet provider in town. But the standards apply only to the company's cable TV service, not to its Internet access. Calic managed to convince his local officials that customer service standards were in Web users' best interest, too. He was appointed to the committee designed to come up with the new standards.

"Even if cable TV users here in Fremont have a separate customer service agreement with TCI, Internet customers still deserve equal treatment," reasons Calic.

SETTING THE STANDARD

IN MAY OF this year, Calic and the rest of the task force (including other @Home customers and company representatives) set to work, identifying problems and areas to be covered by the standards. Although the final recommendations weren't available at press time, Fremont administrative analyst Dan Schoenholz (who oversees the city's standards development effort) says his proposal to the city council is likely to include key customer service issues: time on hold when calling customer service, billing problems, and the like. The group is also investigating possible performance guidelines. At press time, the final draft was scheduled to go before the city council in early October.

The interest in holding cable Internet access providers to a standard of service doesn't surprise Jonathan Copulsky, a partner with the Deloitte consulting firm in Chicago. Copulsky, who specializes in customer relations management for the

telecommunications industry, says cable firms are having many of the same customer service problems with their fledgling Net access offerings that they've historically had with their television service.

"Every year we survey consumers on their satisfaction with various communications services," says Copulsky. "And each year, the cable television industry gets the lowest marks."

If a survey were done today, the cable providers' Internet service wouldn't fare much better. @Home newsgroups are filled with postings from customers who love the speed of cable but are unhappy with the service. Several Web sites have been created by disgruntled subscribers eager to share their knowledge and dissatisfaction with other consumers.

CAPPING THE SERVICE

ONE TOPIC THAT HAS made @Home subscribers particularly vocal is the cap imposed on upload speeds. This spring,



SAMANTHA ELLIOTT, CATASTROPHE TEAM & KEVIN YATES, AGENT

Excite @Home (the result of a merger between the Web portal and the high-speed access company), along with many of its cable partners, began implementing a 128-kbps cap on the speed of upload transmissions. According to Vice President of Marketing Jonathan Rosenberg, the cap was imposed to curtail abuses by customers who hog the system by running a server or using it to run a business out of their home—both violations of their terms of service.

Although the new transmission rate is still more than twice as fast as a standard 56-kbps modem connection, it's considerably slower than the maximum possible speed of 768 kbps along cable lines—and has caused an uproar among many bandwidth-hungry @Home subscribers. According to the company, the cap wasn't supposed to affect Web surfing or download times, but users report that it has.

"When someone is downloading a file simultaneously with an upload, both rates

are capped at the low end," says Mike Blackford, a Silicon Valley resident and @Home subscriber. Blackford says the cap penalizes early adopters while the company struggles to expand the service. Rosenberg, however, says that 99 percent of all @Home subscribers are not affected by the cap. "If anything," he says, "[their] service is better."

But the way the cap was employed comes back to the service issues that already have subscribers up in arms. In a training document making its way through the @Home subscriber community, cable companies are briefed on the cap (called the Onadvantage—or Optimized Network Advantage—program) and coached to avoid talking about it. Representatives for Excite @Home say the document was taken out of context and that the firm never intended to hide the cap from subscribers.

For their part, angry customers have set up a couple of Web sites devoted to telling

the world about the transmission cap and implementation. You can read their views at whizcomp1.webjump.com/athome and www.members.home.net/uploadcap. Interestingly, Excite @Home's advertisements don't cite any specific access speeds that users can expect when they sign up for the service. Instead, they simply promise an Internet service that's "up to 100 times faster" than a standard modem connection.

Although Calic acknowledges the city may not have the legal authority to enforce performance standards, he says, "I want them to have a policy for addressing speed degradation. I'm going to keep pursuing this—with or without the standards."

Happy with your high-speed access? Tell consumervatch@pcworld.com. PC World Contributing Editor Roberta Furger is author of Does Jane Compute? Preserving Our Daughters' Place in the Cyber Revolution (Warner Books, 1998). ■

AT WORK

<p>ales</p> <p>Sale, Vintage any thru 1940's names. Fri 4:30. Both days. 1104 only birds</p> <p>ONGA May 1 28 Mustang</p> <p>Elliott Jon Gule</p> <p>MARKET clothes Sat</p> <p>men's women's clothes. 8:30- Sun 10:20am</p> <p>SALE* all home appliances yest. Sat 9am to 12pm 11am to 12pm all home appliances Sat 9am to 12pm 11am to 12pm</p>	<p>017 Special Notices</p> <p style="text-align: center;">~ Words of Thanks ~</p> <p>With sincere thanks to all who have helped us during this unforgettable time. Thank you to Jackson Madison County General Hospital, the Police Dept., American Red Cross, Salvation Army, and Allstate, especially Samantha Elliott, Kevin Yates and the entire Allstate family.</p> <p style="text-align: center;">Pete & Elaine Rogers & Family</p> <p>018 Appliances</p> <p>*FROST FREE * Frig. Washer/Dryer \$130 Each. Warranty & Delivery Call 714-551-1111</p>	<p>017 Special Notices</p> <p>021 Home</p> <p>Floor Cover</p> <p>PERSIAN & 1 boy, set, clean & g.</p> <p>*OAK FLO. Plus M. LUMBER</p> <p>*FLOORING pre-laid 714-551-1111</p> <p>Furniture</p> <p>EVERYTHING Master Bed set, cherry & 4 post, carved & 1/2 cradle. Los couch set. Bed desk. Mahog. & tables w/ China. hand carved sim. leather set. Area Much, much more. CALL 323</p> <p>INITIAL COR. Formal dining & parson leather set. slip cover sofa. 1/2 set of 4. mahog. & 1/2 set of 4. Mahog. & 1/2 set of 4.</p>
--	--	--

© 1999 Allstate Insurance Company, Northbrook, IL



Allstate.
You're in good hands.

We move the information that moves your world.®

adaptec



YOU'RE READY FOR

MORE!

EASY CD CREATOR 4 DELUXE!

© 1999 Adaptec, Inc. All rights reserved. Adaptec, the Adaptec logo, the Adaptec logo, Easy CD Creator, and Take Two are trademarks of Adaptec, Inc. which may be registered in various jurisdictions. All other trademarks used are owned by their respective owners. Our software is designed to assist you in reproducing material in which you own the copyright or have permission to copy into the copyright owner's. All other trademarks are the property of their respective owners.



Available at:
Best Buy • CompUSA
Fry's Electronics • Office Max
Micro Center • Staples

Easy CD Creator™4 Deluxe goes way beyond the software that came with your CD-Recorder, and all earlier Deluxe editions. It provides powerful protection for all your vital information when you store it on CD. New included Take Two™ software makes it easy to back up your entire hard disk in just three easy steps, and quickly recover from hard disk crashes or virus infections.

Now you can also pull MP3 tracks and other music from the Internet, as well as your favorites from LPs and cassettes, to create your own custom CDs. And you can edit and enhance photos and video. Do more with your data, music, photos, and video with Easy CD Creator 4 Deluxe. It's ready for you.

For details on the Easy CD Creator 4 Deluxe Rebate Offer, see your retail store or contact us at: <http://cdr.adaptec.com/pcwd> or 1-800-442-7274 x5547

New Easy CD Creator 4 Deluxe, Only \$99*_{MSRP}

With \$20 Competitive/Upgrade
REBATE OFFER \$79

'Lease' Sounds Like 'Fleece'—But Is It?

EARLIER THIS YEAR, the Federal Trade Commission charged Dell and Micron with violating federal law by running misleading Internet ads for computer leases. The FTC alleged that the ads placed "material cost information in inconspicuous or unreadable fine print or [omitted]

such information altogether." Both companies have since settled with the FTC and changed the ads.

Does that mean leasing is for suckers? Or, if the FTC thought Dell and Micron were being less than truthful in their ads, can you trust them to come clean?

John McDonald, marketing director at Dell Financial Services, says you can. "Leasing is a financial tool, like any other. It's right for some people, but it may not be for everybody." He says that Dell thought its ads were clear and admitted no guilt in settling. "The FTC mandated that details be clear and conspicuous to comply with the Consumer Leasing Act, but it didn't define *clear* and *conspicuous*."

Richard Contino, the author of *Negotiating Business Equipment Leases* (Amacom Books, 1998), says computer leasing can

be a good deal. "Generally, it's better provided you've shopped around for your lease price," he says. "Clearly the lessor is going to profit, but the process conserves your cash, which you can use for other things." He points to tempting package deals (essentially leases) that offer a PC and Net access for a monthly fee. Says Contino, "When there are aggressive promotions, you can get good value for your dollar."

One potential problem with leasing comes at the end of the lease term, when you have to give the PC back or buy it. "If you need to be on the cutting edge of technology and you have no one to pass the computer down to, leasing is perfect," says McDonald. Contino advises that you negotiate up front on the buyout cost (say, 10 percent of the purchase price) and get it in writing—in case you later realize you want to keep the system.



Heads Up...



CRAMMING WAS THE number one telemarketing scam reported to the National Fraud Information Center (www.fraud.com) in 1998. Now the FTC is cracking down. In July, the Commission sued a Web company that crammed charges on to the phone bills of small businesses for Net-related services—including a trial offer for Web hosting—that were supposed to be free. The practice has caused millions of dollars in losses to businesses, says the FTC. For more information on cramming, see www.ftc.gov/opa/1999/9906/index.htm. Last year, PC maker ProGen Systems made news in these pages for not being able to keep up with customer demand for its computers after it appeared on *PC World's Top 20 Budget Desktops* chart. This June, ProGen filed Chapter 7 bankruptcy in Tustin, California, after a bad year of sales. For more details, check the local automated bankruptcy line at 714/338-5401. Laptop maker Kiwi Computers has apparently disappeared without a trace. My calls to the company were met with either a disconnection notice or a full voice mailbox, and my e-mails went unanswered. Kiwi's Web site, www.kiwi.com, seems to be taking orders, however. At press time, the company stated that it is going out of business. Sunware will handle parts and repairs; reach that company at 510/249-1188.

LETTER OF THE MONTH



I WORK AT a school that owns nine Epson printers. Earlier this year, some of their print heads began clogging. Epson told me to take them to an authorized service center. As it turns out, the closest one is in Albuquerque, 170 miles away. Epson wouldn't pay for shipping, though the units were under warranty. I'm trying to find the funds so I can toss the Epsons and buy reliable printers.

Dr. Robert Becker
St. Michaels, Arizona

On Your Side responds: Richard Bulot, VP of service and support at Epson, explains, "We found that operator error—turning the printer on via a power strip and removing the ink cartridges—caused the malfunctions." And the shipping charges? A misunderstanding, says Bulot. "We'll pay all reasonable shipping charges for units returned for warranty repairs." Epson extended the warranties on all of Becker's printers for an additional year and promised to refurbish them. Becker is pleased. ■

GOTTEN A RAW DEAL?

Or a great one? E-mail the details to onyourside@pcworld.com. We'll investigate complaints and publish items of the broadest interest. Christina Wood is a contributing editor for PC World.

"C" SERIES



ONE-TOUCH CONTROLS

COLOSSAL VIDEO COMMANDING AUDIO COOL DESIGN COPIOUS EXTRAS CALL FOR YOURS NOW

COMPELLING IS THE WORD.

THE NEW C SERIES PERSONAL NOTEBOOKS ARE THE CLASS OF THEIR CLASS. WITH CONVENIENCES LIKE ONE-TOUCH CONTROLS FOR LAUNCHING APPLICATIONS AND PLAYING AUDIO CDS. BUILT-IN MODEM FOR EASY INTERNET ACCESS ANYWHERE. WIRELESS IR MOUSE SUPPORT. LITHIUM ION BATTERY FOR PLENTY OF JUICE. PROCESSING POWER AND MULTIMEDIA FOR THE MILLENNIUM, WITH PIONEER® BASS REFLEX STEREO SOUND AND AVAILABLE DVD. STARTING AT JUST \$1499. THE NEW C SERIES: A COMPELLING CHOICE. TO BUY DIRECT, CALL OR CONNECT: 1-877-FPCDDIRECT OR WWW.FUJITSU-PC.COM.

CHOICES FOR PEOPLE WHO COMPUTE ON THE MOVE

LifeBook C Series

Advanced Multimedia. Discriminating Style.

- Mobile Pentium® II processor 400MHz, 366MHz
- Mobile Intel® Celeron® processor 400MHz, 366MHz
- 14.1", 13.3" or 12.1" TFT color display
- 64MB or 32MB SDRAM (256MB max)
- 10GB, 6.4GB or 4.3GB hard drive
- Built-in 4x DVD or 24x max CD-ROM
- Built-in floppy disk drive
- 2x AGP 4MB ATI RAGE® Mobility™-P graphics
- Yamaha® XG™ 64-voice wavetable sound
- Pioneer bass reflex stereo speakers
- Internal 56K V.90 modem
- One-touch personal CD player
- One-touch application launch buttons
- Wireless IR mouse receiver
- Removable Lithium ion battery
- Microsoft® Windows® 98 SE
- 1-year International Limited Warranty¹

Starting at **\$1,499¹**



LifeBook L Series

Truly Innovative for the Way You Work.

- Mobile Pentium® II processor 366MHz
 - As thin as 1.1"
 - As light as 4.5lbs
 - 13.3" XGA TFT color display
 - 64MB SDRAM (192MB max)
 - 4.3GB hard drive
 - External floppy disk drive
 - Stereo speakers
 - Internal 56K V.90 modem
 - Removable Lithium ion battery
 - Microsoft Windows 98 and Windows NT
 - 3-year International Limited Warranty²
- Optional:
- Detachable Bay with CD-ROM—add \$200
 - Mobile LAN Dock—add \$499

Starting at **\$2,799¹**



LifeBook B Series

Compact Convenience. Maximized Power.

- Mobile Intel Celeron processor 300MHz
 - Only 2.65lbs
 - Touch screen with stylus
 - 8.4" SVGA TFT color display
 - 32MB SDRAM (160MB max)
 - 6.4GB hard drive
 - External floppy disk drive
 - Stereo speakers
 - Internal 56K V.90 modem
 - Removable Lithium ion battery
 - Microsoft Windows 98 SE
 - 1-year International Limited Warranty²
- Optional:
- External CD-ROM—add \$269

Starting at **\$1,799¹**



LifeBook E Series

The Power and Choice You Demand.

- Mobile Pentium® II processor 400MHz, 366MHz
 - Mobile Intel Celeron processor 400MHz, 366MHz
 - 13.3" or 12.1" TFT color display
 - 64MB or 32MB SDRAM (192MB or 160MB max)
 - 10GB, 6.4GB or 4.3GB hard drive
 - Two Multi-function Bays
 - Modular Iomega® Zip® drive³
 - Modular 24x max CD-ROM drive
 - Modular floppy disk drive
 - Stereo speakers
 - Internal 56K V.90 modem
 - Accommodates two batteries
 - Removable Lithium ion battery
 - Microsoft Windows 98 SE & Windows NT
 - 1-year International Limited Warranty²
- Optional:
- LAN Dock—add \$449

Starting at **\$1,699¹**



1-877-FPCDDIRECT WWW.FUJITSU-PC.COM



MOVING WITH YOU

Fujitsu and the Fujitsu logo are registered trademarks and LifeBook is a trademark of Fujitsu Limited. Intel, the Intel Inside Logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. All other trademarks mentioned herein are the property of their respective owners. ©1999 Fujitsu PC Corporation. All rights reserved. ¹Actual speeds over U.S. telephone lines vary and are less than 56Kbps due to current FCC regulations and line conditions. The internal modems on all Fujitsu notebooks from Fujitsu PC Corporation are not qualified for use with telephone systems outside the United States and Canada and may not operate in other countries. ²Service and warranty time may vary by country and product. ³Estimated street prices are subject to change. ⁴Standard on select models.



FUJITSU PC CORPORATION

Circle 94 on card or go to www.pcworld.com/productinfo

"B" SERIES



— COMPACT CONVENIENCE —

BEAUTIFULLY SMALL BIG FUNCTIONALITY BRILLIANT NAVIGATION BUILT-IN MODEM BUY YOURS DIRECT

BRAVADO WITHOUT BULK.

THAT WOULD BE THE NEW LIFEBOOK B SERIES MINI-NOTEBOOKS: THE BIGGEST LITTLE FULL-FUNCTION PCS ON THE BLOCK. BANTAM WEIGHT—JUST 2.65 POUNDS—AND SNUG AS A BUG IN A BRIEFCASE OR PURSE. BUT HERE'S THE BIG BUT: FULL-SIZE PERFORMANCE, FROM THE BLAZING INTEL® CELERON™ PROCESSOR AND PRE-INSTALLED WINDOWS® 98 TO BUILT-IN INTERNET CONNECTIVITY (NO MODEM PC CARD REQUIRED), A BREEZE TO USE, TOO, WITH TOUCH SCREEN AND STYLUS. THE NEW B SERIES MINI-NOTEBOOKS: SMALL IS BEAUTIFUL—AND STARTING AT \$1799, THAT'S BIG. BUY YOURS DIRECT AT 1-877-FPCDIRECT OR WWW.FUJITSU-PC.COM.

CHOICES FOR PEOPLE WHO COMPUTE ON THE MOVE

LifeBook B Series

Compact Convenience. Maximized Power.

- Mobile Intel Celeron processor 300MHz
- Only 2.65lbs
- Touch screen with stylus
- 8.4" SVGA TFT color display
- 32MB SDRAM (160MB max)
- 6.4GB hard drive
- External floppy disk drive
- Stereo speakers
- Internal 56K V.90 modem
- Removable Lithium ion battery
- Microsoft® Windows 98 SE
- 1-year International Limited Warranty¹

Optional:

- External CD-ROM—add \$269

Starting at **\$1,799**



LifeBook L Series

Truly Innovative for the Way You Work.

- Mobile Pentium® II processor 366MHz
- As thin as 1.1"
- As light as 4.5lbs
- 13.3" XGA TFT color display
- 64MB SDRAM (192MB max)
- 4.3GB hard drive
- External floppy disk drive
- Stereo speakers
- Internal 56K V.90 modem
- Removable Lithium ion battery
- Microsoft Windows 98 and Windows NT
- 3-year International Limited Warranty¹

Optional:

- Detachable Bay with CD-ROM—add \$200
- Mobile LAN Dock—add \$499

Starting at **\$2,799**



LifeBook E Series

The Power and Choice You Demand.

- Mobile Pentium II processor 400MHz, 366MHz
- Mobile Intel Celeron processor 400MHz, 366MHz
- 13.3" or 12.1" TFT color display
- 64MB or 32MB SDRAM (192MB or 160MB max)
- 10GB, 6.4GB or 4.3GB hard drive
- Two Multi-function Bays
- Modular Iomega® Zip® drive⁴
- Modular 24x max CD-ROM drive
- Modular floppy disk drive
- Stereo speakers
- Internal 56K V.90 modem
- Accommodates two batteries
- Removable Lithium ion battery
- Microsoft Windows 98 SE & Windows NT
- 1-year International Limited Warranty¹

Optional:

- LAN Dock—add \$449

Starting at **\$1,699**



LifeBook C Series

Advanced Multimedia. Discriminating Style.

- Mobile Pentium II processor 400MHz, 366MHz
- Mobile Intel Celeron processor 400MHz, 366MHz
- 14.1", 13.3" or 12.1" TFT color display
- 64MB or 32MB SDRAM (256MB max)
- 10GB, 6.4GB or 4.3GB hard drive
- Built-in 4x DVD or 24x max CD-ROM
- Built-in floppy disk drive
- 2x AGP 4MB ATI RAGE® Mobility™-P graphics
- Yamaha® XG™ 64-voice wavetable sound
- Pioneer bass reflex stereo speakers
- Internal 56K V.90 modem
- One-touch personal CD player
- One-touch application launch buttons
- Wireless IR mouse receiver
- Removable Lithium ion battery
- Microsoft Windows 98 SE
- 1-year International Limited Warranty¹

Optional:

- LAN Dock—add \$449

Starting at **\$1,499**



1-877-FPCDIRECT WWW.FUJITSU-PC.COM



MOVING WITH YOU

Fujitsu and the Fujitsu logo are registered trademarks and LifeBook is a trademark of Fujitsu Limited. Intel, the Intel Inside Logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. All other trademarks mentioned herein are the property of their respective owners. ©1999 Fujitsu PC Corporation. All rights reserved. ¹Actual speeds over U.S. telephone lines vary and are less than 56Kbps due to current FCC regulations and line conditions. The internal modems on all Fujitsu notebooks from Fujitsu PC Corporation are not qualified for use with telephone systems outside the United States and Canada and may not operate in other countries. ²Service and warranty time may vary by country and product. ³Estimated street prices are subject to change. ⁴Standard on select models.



FUJITSU PC CORPORATION

Circle 94 on card or go to www.pcworld.com/productinfo

FLAT OUT SUPERIOR!



Super Pigment Phosphors



Exclusive "Wide Viewing Technology"



DynaFlat™ Technology



.20mm Dot Mask (H) for Razor Sharp Text



Smart III Coating



Samsung's SyncMaster™ monitors are flat out the best choice for your money. It's all in the technology. Five proprietary technologies go into these incredibly precisioned machines. For example, our SyncMaster™ CRT monitors feature DynaFlat™, the most advanced screen technology in the world—delivering a perfectly flat tube with no visible curvature, for absolutely no distortion from any angle. Additionally, our TFT flat panel monitors, with Samsung's Color Filter Technology, have one of the widest color ranges on the market. They also have an Auto Advanced Image Scaling and Enhancement function that delivers crisp images at all resolutions.

We have the technology, and produce our own components, including the glass. Top quality from concept to final product. We have the awards and reviews to prove it. Get the proof on our web site at www.samsungmonitor.com or call us at 1-800-SAMSUNG.

SAMSUNG

ELECTRONICS

The Easy Way to Hassle-Free Backups

PROBLEM *You know you should back up your data regularly, but you rarely remember to do it.*

SOLUTION *Automate backups through drive mirroring, or schedule backups to a second hard disk.*



KEVIN GREGG KNOWS THAT good intentions don't always beget good behavior when it comes to backing up your computer. Gregg, an Indianapolis consultant and software developer, ran into a worrisome case of backup neglect with one of his clients, a small accounting firm. Although the firm added a tape drive to its server for backups, nobody remembered to initiate the process regularly. Gregg scheduled automatic backups to run every night, but inattention foiled even this seemingly goof-proof solution—his client failed to change the tape. "After so many backups," Gregg recalls,

"the tape would get fried...and there would be three to four weeks of failed backups in the log."

Gregg solved the problem by using an even more automatic form of backup: drive mirroring, in which every bit and byte written to one hard drive is simultaneously written to a second one. This obviously requires a second drive (two partitions won't do), but today's hard drives' affordable prices (\$100 to \$200), high performance, and excellent reliability make it a solution well worth considering.

MIRROR, MIRROR

IF YOU USE Windows 95 or 98, you'll need a special hard disk controller to implement drive mirroring. While Windows NT supports drive mirroring when used with SCSI drives, Gregg's client used Windows NT with IDE drives, so he opted for Promise Technology's FastTrak. The current version, FastTrak66, costs \$149 and transfers data at 66MB per second. It can handle drives of different sizes and speeds, but you'll get better results with drives similar in capacity and performance. If you have a slow 4GB drive and a fast 6GB drive, the mirroring process can only go as fast as the slower drive.

Keep in mind that using a controller like FastTrak66 will take a PCI slot and an IRQ, which may be a problem if your computer is already chock-full of components. Don't buy an extra drive or new controller card until you're sure you can set them up. (For advice on installing a second hard drive, see www.pcworld.com/may99/upgrade_guide.)

Of course, you could avoid a second drive altogether and simply schedule backups to a separate partition on your existing drive; but if the drive fails, so will your backup. With drive mirroring, your backup is always up-to-date, and you won't miss a beat if one drive fails.

SKIP THE CONTROLLER

A LESS EXPENSIVE option to drive mirroring involves using software to make scheduled backups to a second drive. With this method, you still have a backup of your hard disk, but because backups occur at intervals that you schedule, you can exercise greater control. If your primary drive gets mangled or if FAT corruption occurs, you can revert to the last backup on your second drive. That can be an advantage over drive mirroring, where *everything* is simultaneously written to both disks, including corruption problems. ▶

GOT A PROBLEM?

To set up automatic backups in Windows 95 or 98, you'll need a backup utility capable of running without intervention, and a task scheduler to handle the execution. Windows 95 provides the former but not the latter. Windows 98 provides the latter but not the former (its backup utility requires intervention). If either element is missing, you'll need to install it. Under Win 95, Microsoft Plus adds the missing scheduler—System Agent—but getting Microsoft Backup to run by itself can be tricky. In Win 98, the backup won't work without intervention, so you'll need a third-party backup program or the \$49 upgrade to Veritas Backup Exec, a full-featured version of Microsoft Backup that makes it easy to schedule backups with either Windows 95 or 98.

COMING TO TERMS

NO SINGLE SOLUTION will suit every user. Dual hard drives make sense in many situations, but an ideal strategy

Promise FastTrak66

\$149 list; Promise Technology; 800/888-0245; www.promise.com

PRODUCT INFO NO. 622

Veritas Backup Exec

\$99 list, upgrade for Windows 98 users \$49, upgrade for users of previous versions \$29; Veritas Software; 800/327-2232 for server products or 888/732-2021 for desktop products; www.veritas.com

PRODUCT INFO NO. 623

would include occasional archives to tape or some other removable medium. This would give you several places from which to restore files that have disappeared from your main drive, for example. Removable media will also protect data against fire or theft if you store the tapes off site. Popular IDE tape drives such as the Iomega Ditto and the Hewlett-Packard Colorado sell for as little as \$200 and hold 7GB to 8GB of storage. You might also try backing up

only key data subdirectories to smaller media like a 100MB Zip cartridge or a 120MB LS-120 SuperDisk.

Finally, online backup services such as Atrivia's Internet File Zone (www.atrivia.com or www.i-filezone.com) and Connected Online Backup (www.connected.com) let you back up files over the Web. But uploading numerous files via modem may be time-consuming.

Gregg ultimately opted to leave the tape drive in his client's server to augment the drive mirroring, and occasionally proffers a gentle reminder. "I told them that they still need to be backing up to tape once a week," he said, "or at least once a month." But, he good-naturedly notes, they still aren't doing this. Perhaps the biggest step toward realizing good backup habits is to recognize your own limitations and have the good sense to plan around them.

Ethan Archer writes frequently about technology from his home in the Northwest. ■

FREE!
check creation software
download at: www.versacheck.com

Home & Business Solutions 2000

In today's fast-paced, competitive world efficiency and saving money

are more important than ever. That's why the people at Mips Dataline America, Inc., the leader in retail check creation software, first created VersaCheck. Users save 50-80% vs. pre-printed checks. Mips now offers an integrated suite of products to handle many of your business needs including Internet Commerce, Contact Management and Data Capture. Discover more about the many benefits of using Mips' products by visiting your local software store or office superstore, or see our Website at: www.versacheck.com

The fastest, easiest way to capture contact data from business cards and telephone books!

Print your own custom checks for Quicken, QuickBooks and Money!



New!
32 bit version

Save 50-80% vs. pre-printed checks!

ERP \$19.99
(After \$10 upgrade rebate)
Win 3.1/95/98/NT 4.0



New!

ERP \$49.99
Win 95/98/NT 4.0

Complete Contact Manager and sales order package!



ERP \$49.99
Win 95/98/NT 4.0



ERP \$79.99
Win 3.1/95/98/NT 4.0

The easiest way to set up your business online!

FREE
Web Hosting
For 60 Days!

Just \$9.95 per month thereafter

Also link to your store from your existing Web site!

Circle 138 on card or go to www.pcworld.com/productinfo

MICRO CENTER
The Computer Superstore

COMPUSA
800-COMPUSA

TigerSoftware
800-888-4437

Also available through other fine retailers.

OfficeMax
800-788-8080

Office DEPOT
Office Products at Wholesale Prices

Fry's

BEST BUY

800-898-8560
www.versacheck.com

mips Dataline America, Inc.
Tel: 858-613-6686 • Fax: 858-613-6688

UMAX

#1 in U.S. sales*



UMAX SCANNERS. FOR THOSE WHO WANT MORE.



ASTRA 2200
(USB & SCSI)



ASTRA 2400S
(SCSI)

Do you aim a little higher? Then you need a UMAX Astra series scanner. Whether it's the Astra 2400S with a legal-size scanning area and blazing-fast SCSI interface. Or the Astra 2200, with its easy-to-use push button design and built-in transparency cover, you can't miss. You get award-winning software to make you more productive — from Adobe, Caere and NewSoft. No wonder more people buy UMAX scanners than any other brand. For more information call (800)331-UMAX. Or visit www.umax.com

Think Ink!

Make it clear. Make it Canon.

Our Electronics Department conveniently has a great selection of name brand ink cartridges like Canon for all your not-so-convenient PC printing needs. All at our Every Day Low Price. Now that's something to think about.



The Monitor That Ate My Desk

"IT'S A BEHEMOTH," my wife said. "No, honey, it's a *Mitsubishi*," I said. Yeah, well, it was enormous—a monster 22-inch monitor—and it was sitting in the middle of my desk.

Like most incurable dweeb, I've always wanted to try a big monitor. Like *huge*. And I finally had a good excuse. My three-year-old Sony 17se monitor was on its last legs. The picture was fuzzy and the color was fading. And it's not as though I wasn't warned. My last Sony, a 14-inch, turned tail with a loud whine back in 1994. So my future one and only won't be a Sony.

But am I really ready for the big time? After two weeks with this beast sitting on my desk, I'm not so sure.

CATCH 22 (INCHES)

FIRST, LET ME say that the Mitsubishi Diamond Pro 2020u is terrific. Images are razor-sharp, with rich, deep, vivid colors. The screen's flat, with practically no distortion. Everything—from Web pages and games to newsletters in my publishing program—looks spectacular.

Even better: The monitor comes with a built-in, self-powered Universal Serial Bus hub. And if you read last July's column (www.pcworld.com/jul99/home_office),

Diamond Pro 2020u, Diamond Pro 900u

2020u \$1200, 900u \$700 street; Mitsubishi Display Products; 800/843-2515;
www.mitsubishi-display.com

PRODUCT INFO NO. 624

DisplayMate for Windows

\$79 list; DisplayMate Technologies;
800/932-6323; www.displaymate.com

PRODUCT INFO NO. 625



Even for a computer dweeb like me, a **22-inch monitor** is too big (and at **\$1200, too darn pricey**).

you know how crazy I am about USB.

You may find this hard to believe, but even for a computer dweeb like me, a 22-inch monitor is just *too* big (and at \$1200, too darn pricey). With the monitor's 19-inch depth, plus another 4 inches or so for the cables and power cord, the Mitsubishi got way too close to my nose (although I was starting to get a nice golden tan).

Just as bad, the Mitsubishi weighs 75 pounds. (It's the only time I've seen the FedEx guy furrow his brow.) The thing nearly crushed my monitor stand, so it ended up swallowing my desk. A better choice? Mitsubishi's 19-inch 900u. It has the same USB ports and flat screen as the 22-inch model, but it's not as wide, tall, or deep. It's also \$500 cheaper and won't give me or the FedEx guy a hernia.

FOCUS POCUS

MAYBE YOU'RE not ready to drop \$700 on a new monitor. No sweat. I have a few tips to bring your display back into focus.

First, get a copy of DisplayMate, a vital utility for adjusting monitors. I've been using it since 1994, and I've seen an improvement on every display I've used it on (except, darn it, the 17-inch Sony).

Most monitor settings tend to drift over a period of days, not unlike my attention when my editor calls. DisplayMate provides the tools—and the expert on-screen help—to correct and then fine-tune those settings.

At \$79, DisplayMate is a little pricey, but even if you grab just a copy of the free 200KB demo version (available on www.displaymate.com/products or from FileWorld), you'll be ahead of the game. In minutes, you'll be able to improve sharpness, adjust contrast and brightness, perfectly center your image, and reduce geometric distortion.

There are two other things you can do right away to prolong your monitor's life and get better performance out of it. You probably know you should increase your monitor's refresh rate to avoid annoying screen flicker, right? Well, make sure you don't exceed 75 Hz. High refresh rates can stress the monitor's components, use more electricity, and degrade the picture.

Next, don't exceed the monitor's maximum addressable resolution. Best setting is 800 by 600 for a 15-inch monitor, 1024 by 768 for a 17-incher, and 1280 by 1084 for a 19-inch model. Exceed these resolutions, and your screen will redraw slower.

I'm thrilled to have my desk back and to be getting a new Mitsubishi. Now the only thing that needs adjusting is my back.



Find all files mentioned in this article at www.fileworld.com/ magazine. Contributing Editor Steve Bass is a licensed marriage and family therapist and president of the Pasadena IBM Users Group. See page 14 for contact information.



PRESARIO 5700N-466 INTERNET PC

Intel® Celeron™ Processor, 466 MHz
128 MB SyncDRAM, 8 MB dedicated for video memory
10.0 GB UltraDMA Hard Drive¹
32X Max CD-ROM Drive¹
Integrated 2X AGP 3D Graphics
Aureal A3D Interactive 360° Positional Sound
56K ITU V.90 Modem²
JBL Pro Amplified Speakers
Creativity Action Center
128 KB integrated L2 Pipeline Burst Cache
Microsoft® Featured Home Collection + MS® Word
Microsoft Windows⁹⁸
Compaq CV515 15" Monitor (13.8" V/A)

\$599⁺ AFTER REBATE
\$999
-\$400 CompuServe Rebate³
\$599

Compaq CV715 17" Monitor (16.0" V/A): Add \$70
JBL Pro Premium Speakers w/Subwoofer: Add \$49
LJ300 Color Inkjet Printer: Add \$99

PRESARIO 5700N-500 INTERNET PC

Intel Celeron Processor, 500 MHz
128 MB SyncDRAM, 8 MB dedicated for video memory
10.0 GB UltraDMA Hard Drive¹
8X DVD-ROM Drive¹
Integrated 2X AGP 3D Graphics
Aureal A3D Interactive 360° Positional Sound
56K ITU V.90 Modem²
JBL Pro Premium Speakers w/Subwoofer
Creativity Action Center
128 KB integrated L2 Pipeline Burst Cache
Microsoft Office 2000 SBE⁴
Microsoft Windows98
Compaq CV715 17" Monitor (16.0" V/A)

\$899⁺ AFTER REBATE
\$1299
-\$400 CompuServe Rebate³
\$899

4X CDRW Drive⁵: Add \$199
6.0Mb Max Digital Modem²: Add \$99
100 MB Iomega® Zip Built-In™ Drive⁶
+ 1 disk: Add \$79

PRESARIO 5700T-500/3 INTERNET PC

Intel Pentium® III Processor, 500 MHz
128 MB SyncDRAM expandable to 512 MB
18.0 GB (7200 rpm) UltraDMA Hard Drive¹
8X DVD-ROM Drive¹
Savage4 Pro 16 MB 2X AGP Graphics Card
ESS Solo PCI Audio
56K ITU V.90 Modem²
JBL Pro Amplified Speakers
Digital Creativity Imaging Center⁷
Microsoft Featured Home Collection + MS Word
Microsoft Windows98
Compaq CV715 17" Monitor (16.0" V/A)

\$1199⁺ AFTER REBATE
\$1599
-\$400 CompuServe Rebate³
\$1199

4X CDRW Drive⁵: Add \$199
APC Back-UPS Pro Office 280: Add \$89
250 MB Iomega® Zip Built-In™ Drive⁶
+ 1 disk: Add \$149

Personalize
by choosing:



Compaq Financing

Get the Compaq technology you want for a low monthly payment through the Compaq consumer financing program.⁸ From instant application processing to flexible payment options, financing is the fast and easy way to acquire the latest Compaq technology.

Take advantage of Compaq values at any of these qualified retailers: ABC Warehouse, American Appliance, American TV, Best Buy, Big City Express, Brandsmart USA, Buy.com, CDW, Circuit City, CompUSA, CompUSANET.com, Computer Town, Conn's, DataVision, Fred Meyer, Fry's Electronics, the good guys!, h.h. Gregg, Insight, J&R Computer World, Micro Center, MicroWarehouse, Multiple Zones, Nationwide Computers & Electronics, Nebraska Mega Mart, Office Depot, OfficeMax, Onsale.com, Outpost.com, PC Connection, PC Mall, PC Richard & Son, PC Warehouse, RadioShack, RCS Computer Experience, Sears, Shopping.com, Staples, State Street Discount, The Wiz, Tiger Direct, Tops Appliance City, ValueAmerica.com Visit a **Compaq Built For You Custom PC Center** at select retailers highlighted in bold above.

All prices shown are Compaq Direct selling prices and do not include applicable sales tax and shipping, are valid in the U.S. only and are subject to change or cancellation without notice. Not all models available in retail stores. ¹Illustrations may not accurately represent exact configurations priced. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. ²This product is provided and administered by MBNA America Bank, N.A. Financing available upon approval. ³System tested using NIST YMARK2000 hardware test. Non-compliant third-party software/hardware products may affect roll-over results. For more details, see www.compaq.com/year2000. ⁴For hard drives, GB=billion bytes. ⁵ITU V.90 modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. ⁶Works with most third-party devices. ⁷32X Max CD-ROM data transfer rates may vary from 1800 to 4800 Kbps. ⁸8X DVD-ROM Drive transfer rate is up to 8115 Kbps compared to 1352 Kbps for 1X DVD-ROM Drives. ⁹6.0Mb Max Digital Modem uses the ADSL/G.Lite protocol. ADSL/G.Lite/56K V.90 updates may be downloaded from the Compaq Web site when available. The ADSL/G.Lite/56K V.90 protocol is designed to allow faster downloads from ADSL/G.Lite/56K V.90 compliant sources. Availability of ADSL/G.Lite/56K V.90 services will vary by region and Internet Service Provider (ISP), and may differ from V.90 ISP services. Maximum achievable download transmission rates with ADSL/G.Lite/56K V.90 are currently unknown and may not reach 6.0Mbps, and will vary with line conditions and distance. ¹⁰Home Phoneline Networking and Ethernet Port cannot be used simultaneously. Additional PC must have a network adapter, sold separately. AOL is a single user system and will not allow multiple users

We're making everything about computers easier. Including buying one.

The Compaq Presario 5700 Series Internet PC.

Internet access at the touch of a button. USB and IEEE1394 ports located on the front of the PC for easy connection to digital camcorders and other peripherals. And the option of Home Phoneline Networking⁷ for simultaneous Internet connections from every PC in your house.

At Compaq, we've made our reputation by making computers easier and more fun to use. Now we're even making them easier to buy — and we're not just talking price. We're talking choice. Get yours at your favorite retailer, call us directly, or visit our website. We even offer a number of financing options.

Speaking of options, how about a faster processor? A bigger monitor? More memory? No problem. We make customizing your PC easy, too. In fact, there's only one thing that's difficult about buying one of these PCs. Choosing one.

PRESARIO 5700T-550/3 INTERNET PC

Intel® Pentium III Processor, 550 MHz
128 MB SDRAM expandable to 512 MB
20.0 GB UltraDMA Hard Drive¹
8X DVD-ROM Drive¹
Savage4 Pro 16 MB 2X AGP Graphics Card
ESS Solo PCI Audio
56K ITU V.90 Modem²
JBL Pro Amplified Speakers
Digital Creativity Imaging Center³
Home Phoneline Networking PCI Card⁴
Microsoft Featured Home Collection + MS Word
Microsoft Windows98
Compaq CV715 17" Monitor (16.0" VIA)

\$1449⁺

AFTER REBATE
\$1849
-\$400 CompuServe Rebate⁵
\$1449

Compaq CV915 19" Monitor (18.0" VIA): Add \$190
6.0Mb Max Digital Modem²: Add \$99
Creative Labs 3D Blaster 32MB TNT-2
Ultra Accelerator: Add \$109

PRESARIO 5700T-600/3 INTERNET PC

Intel® Pentium III Processor, 600 MHz
128 MB SDRAM expandable to 512 MB
20.0 GB UltraDMA Hard Drive¹
8X DVD-ROM Drive¹
Creative Labs 3D Blaster 32 MB TNT-2 Ultra Accelerator
Diamond Monster Sound MX300 PCI Audio Card
6.0Mb Max Digital Modem²
JBL Pro Premium Speakers w/Subwoofer
Digital Creativity Imaging Center³
Microsoft Office 2000 SBE
Microsoft Windows98
Compaq CV915 19" Monitor (18.0" VIA)

\$2099⁺

AFTER REBATE
\$2499
-\$400 CompuServe Rebate⁵
\$2099

4X CDRW Drive¹: Add \$199
Microsoft Office 2000 Professional Upgrade: Add \$199
256 MB SDRAM: Add \$199

Save \$400

on any of these PCs with monitors when you sign up for CompuServe Internet Service for just \$21.95 a month!⁶ Call today for details.

1-888-444-3332 www.compaq.com

Buy direct from Compaq, or purchase yours at your favorite retailer.

COMPAQ

Y2K

COMPAQ PRODUCTS ARE YEAR 2000 HARDWARE COMPLIANT.¹¹

to access simultaneously under the same account. Other Internet Service Providers may have the same restrictions. ¹Omega is a registered trademark and Zip Built-In is a trademark of Iomega Corporation. ²CDRW drive recording transfer rate may vary from 150 to 600 Kbps; reading transfer rate may vary from 1500 to 3600 Kbps. ³\$400 mail-in rebate from CompuServe with purchase of a qualifying Compaq Presario computer and monitor from 7/25/99 to 10/9/99 and contract commitment to a 36-month subscription for CompuServe 2000 Internet Service at the monthly rate of \$21.95. Completed mail-in rebate form, original purchase receipt, and a valid major credit card required. Service must be initiated and CompuServe Terms of Service must be accepted within 30 days of purchase. Mail-in rebate materials must be received by 11/30/99. Offer valid in the U.S. only and void where prohibited by law. You must be 18 years or older. Limit one per household. Additional terms and conditions apply. Full details available in store or by calling 1-888-444-3332. One year parts and labor. Labor for desktop systems is pick-up service during the first 90 days of ownership. Compaq, the Compaq logo, and Presario are registered trademarks and Celeron is a trademark of Intel Corporation. Product and company names mentioned herein may be trademarks and/or registered trademarks of other companies. Call Compaq Monday-Friday, 7:00 am-11:00 pm (CT). ©1999 Compaq Computer Corporation. All rights reserved.



Shown here: Presario 1800T Internet Notebook PC.

Save \$400

on any of these notebooks, when you sign up for CompuServe Internet Service for just \$21.95 a month.* Call today for details.

Base price includes:

Personalize by choosing:

PRESARIO 1600s-380 INTERNET NOTEBOOK PC

AMD-K6™-2 380 MHz Processor
14.1" TFT Active Matrix Display
32 MB SyncDRAM
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
56K ITU V.90 Modem (PCI)³
Hi-Capacity Lilon Battery
ATI 3D Rage LT Pro™ Hardware Accelerated
3D Graphics with 8 MB video memory
2X AGP for Enhanced Video Graphics
1 MB L2 Pipeline Burst Cache
Microsoft® Featured Home Collection
Microsoft Windows®98

\$1399* AFTER REBATE
\$1799
-\$400 Rebate⁴
\$1399

128 MB SyncDRAM: Add \$200
Compaq Value Case: Add \$39
Extra Hi-Capacity Lilon Battery: Add \$129

PRESARIO 1600s-380 INTERNET NOTEBOOK PC

AMD-K6-III 380 MHz Processor
14.1" TFT Active Matrix Display
64 MB SyncDRAM
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
56K ITU V.90 Modem (PCI)³
Hi-Capacity Lilon Battery
ATI 3D Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB video memory
2X AGP for Enhanced Video Graphics
1 MB L3 Pipeline Burst Cache
Microsoft® Featured Home Collection
Microsoft Windows®98

\$1499* AFTER REBATE
\$1899
-\$400 Rebate⁴
\$1499

128 MB SyncDRAM: Add \$200
6.4 GB UltraDMA Hard Drive¹: Add \$100
Extra Hi-Capacity Lilon Battery: Add \$129

Y2K

COMPAQ PRODUCTS ARE YEAR 2000 HARDWARE COMPLIANT.*

COMPAQ



**PRESARIO 1600s
INTERNET NOTEBOOK PC**

All prices shown are Compaq Direct selling prices and do not include applicable sales tax and shipping, are valid in the U.S. only and are subject to change or cancellation without notice. Not all models available in retail stores. *Illustrations may not accurately represent exact configurations priced. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. **System tested using NIST YMARK2000 hardware test. Non-compliant third-party software/hardware products may affect roll-over results. For more details, see www.compaq.com/year2000. ¹For hard drives, GB=billion bytes. ²ITU V.90 modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. ³24X Max CD-ROM data transfer rates may vary from 1500 to 3600 Kbps. ⁴4X DVD-ROM drives run at a higher maximum transfer rate of up to 5400 Kbps compared to 2nd-Generation DVD-ROM Drives which run at a maximum transfer rate of up to 2705 Kbps. *\$400.00 mail-in rebate from CompuServe with purchase of a qualifying Compaq Presario notebook from 7/25/99 to 10/9/99 and contract commitment to a 36-month

Attention all modem-plugging, drive-swapping, peripheral-obsessed notebook users:

Your all-in-one notebook is ready.

The Compaq Presario 1600s Series Internet Notebook PC.

While it may be impossible to be all things to all people, there now exists a notebook which is all things to certain people.

People whose pulses race at the mere mention of features like Accelerated 3D Graphics, JBL Pro Audio, and a fourteen-inch display. People who have been itching for bonuses like one-touch Internet access, DVD, and a superfast 56K modem. People who get an extra charge out of knowing that they can get all this stuff built into one sleek notebook.

This little powerhouse even comes with your choice of an AMD-K6[®]-2 or K6-III processor, for the kind of high performance you need when you're on the road.

The all-in-one Compaq Presario 1600s Series Internet Notebook PC. The only thing missing from it is you.

PRESARIO 1600s-400 INTERNET NOTEBOOK PC

AMD-K6-2 400 MHz Processor

14.1" TFT Active Matrix Display

64 MB SDRAM

4.8 GB UltraDMA Hard Drive¹

24X Max CD-ROM Drive²

56K ITU V.90 Modem (PCI)³

Hi-Capacity Lilon Battery

ATI 3D Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB video memory

2X AGP for Enhanced Video Graphics

1 MB L2 Pipeline Burst Cache

Microsoft Featured Home Collection

Microsoft Windows98

\$1599*
AFTER REBATE
\$1999
-\$400 Rebate⁴
\$1599

128 MB SDRAM: Add \$200

6.4 GB UltraDMA Hard Drive¹: Add \$100

Mobility Auto Adapter: Add \$99

PRESARIO 1600s-400 INTERNET NOTEBOOK PC

AMD-K6-2 400 MHz Processor

14.1" TFT Active Matrix Display

64 MB SDRAM

4.8 GB UltraDMA Hard Drive¹

4X DVD-ROM Drive⁴

56K ITU V.90 Modem (PCI)³

Hi-Capacity Lilon Battery

ATI 3D Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB video memory

2X AGP for Enhanced Video Graphics

1 MB L2 Pipeline Burst Cache

Microsoft Office 2000 SBE⁵

Microsoft Windows98

\$1799*
AFTER REBATE
\$2199
-\$400 Rebate⁴
\$1799

Quik Dock: Add \$99

Compaq Value Case: Add \$39

Extra Hi-Capacity Lilon Battery: Add \$129

PRESARIO 1600s-380 INTERNET NOTEBOOK PC

AMD-K6-III 380 MHz Processor

14.1" TFT Active Matrix Display

64 MB SDRAM

6.4 GB UltraDMA Hard Drive¹

4X DVD-ROM Drive⁴

56K ITU V.90 Modem (PCI)³

Hi-Capacity Lilon Battery

ATI 3D Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB video memory

2X AGP for Enhanced Video Graphics

1 MB L3 Pipeline Burst Cache

Microsoft Featured Home Collection

Microsoft Windows98

\$1899*
AFTER REBATE
\$2299
-\$400 Rebate⁴
\$1899

Quik Dock: Add \$99

Extra AC Adapter: Add \$49

Extra Hi-Capacity Lilon Battery: Add \$129

PRESARIO 1600s-380 INTERNET NOTEBOOK PC

AMD-K6-III 380 MHz Processor

14.1" TFT Active Matrix Display

192 MB SDRAM

6.4 GB UltraDMA Hard Drive¹

24X Max CD-ROM Drive²

56K ITU V.90 Modem (PCI)³

Hi-Capacity Lilon Battery

ATI 3D Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB video memory

2X AGP for Enhanced Video Graphics

1 MB L3 Pipeline Burst Cache

Microsoft Featured Home Collection

Microsoft Windows98

\$2099*
AFTER REBATE
\$2499
-\$400 Rebate⁴
\$2099

Quik Dock: Add \$99

Extra AC Adapter: Add \$49

Tripp Lite 140 Watt Inverter: Add \$49.95

1-800-240-1620 www.compaq.com

Buy direct from Compaq, or purchase yours at your favorite retailer.

Compaq Retailers

ABC Warehouse, American Appliance, **American TV**, Best Buy, Big City Express, **Brandsmart USA**, Buy.com, CDW, **Circuit City**, **CompUSA**, CompUSANET.com, Computer Town, Conn's, DataVision, Fred Meyer, Fry's Electronics, the good guys!, h.h. Gregg, Insight, **J & R Computer World**, Micro Center, **MicroWarehouse**, Multiple Zones, Nationwide Computers & Electronics, **Nebraska Mega Mart**, **Office Depot**, OfficeMax, Onsale.com, Outpost.com, PC Connection, PC Mall, PC Richard & Son, PC Warehouse, **RadioShack**, RCS Computer Experience, Sears, **Shopping.com**, **Staples**, State Street Discount, The Wiz, **Tiger Direct**, Tops Appliance City, ValueAmerica.com **Visit a Compaq Built For You Custom PC Center at select retailers highlighted in bold above.**

subscription for CompuServe 2000 Internet Service at the monthly rate of \$21.95. Completed mail-in rebate form, original purchase receipt, and a valid major credit card are required. Service must be initiated and CompuServe Terms of Service must be accepted within 30 days of purchase. Mail-in rebate materials must be received by 11/30/99. Offer valid in the U.S. only and void where prohibited by law. You must be 18 years or older. Limit one per household. Additional terms and conditions apply. Full details are available in store or by calling 1-800-240-1620. One year parts and labor. Labor for notebooks is pick-up service. Compaq, the Compaq logo, and Presario are registered in the U.S. Patent and Trademark Office. Microsoft, MSN, and Windows are registered trademarks of Microsoft Corporation. AMD and K6 are trademarks of Advanced Micro Devices, Inc. Call Compaq Monday-Friday, 7:00 am-11:00 pm (CT). ©1999 Compaq Computer Corporation. All rights reserved.

MAKING THE WORLD A SMARTER PLACE THROUGH STATISTICS...

SPSS[®] 9.0

REAL STATS. REAL EASY.[™]

IN-DEPTH
STATISTICS &
MODELING

CONVERT YOUR
DATA INTO DECISION
MAKING *POWER*.
I DID!!!

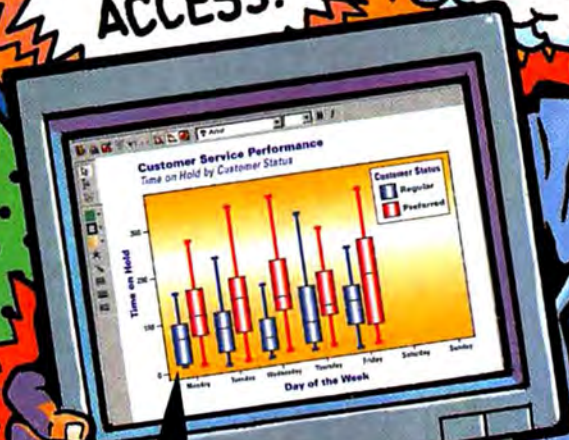
UNRIVALED
DATA
ACCESS!

MAKE
PREDICTIONS

FIND
PATTERNS

SPSS HELPS YOU...

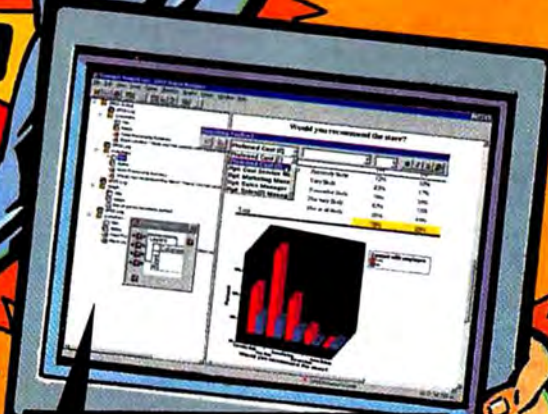
- PICK THE RIGHT TYPE OF ANALYSIS
- INTERPRET YOUR RESULTS



EASILY SEE DISTRIBUTION!
FOCUS YOUR ANALYSIS
LIKE NEVER BEFORE

INTERACTIVE
GRAPHS

REPORT
OLAP



SLICE! DICE! DRILL DOWN!
GET KEY VIEWS OF YOUR
RESULTS AT A GLANCE

CALL 1-800-543-5837

WWW.SPSS.COM

SPSS[®]

SPSS is a registered trademark of SPSS Inc.
Info-Man is a copyrighted character of SPSS Inc.
S9AD2-0199PCW A5837

Win 98 SE could get messy ♦ New NT Service Pack: elective surgery

Windows 98 SE: Uphill Upgrade?

WINDOWS 98 SECOND EDITION, a micro-upgrade to Windows 98, includes a few new features and a swarm of bug fixes. But if you're contemplating a move to the new release (see "Windows vs. Windows vs. the World," page 122), beware: Windows 98 Second Edition may be less reliable than Windows 98.

Microsoft's Knowledge Base lists more than a dozen mostly minor Windows 98 SE bugs (see www.microsoft.com/support). The most widely reported problems seem related to power management activities such as booting up and shutting down, and may not be entirely Microsoft's fault. Power management glitches are often caused by problems in the third-party system BIOS software built into the motherboard. Some BIOSs apparently don't interact well with Windows 98 SE's power management software, which differs slightly from the original version in Windows 98. Microsoft is aware of specific shutdown problems and plans to post an update shortly.

BUG After upgrading to Windows 98 SE, you may find that trying to shut down triggers a protection-fault error or reboot, and that the system won't wake up from suspend mode.

WORK-AROUND If your Pentium II or Pentium III system uses Intel's popular SE440BX-2 motherboard (ask the manufacturer if you don't know), you may be able to put an end to these errors by upgrading to the latest BIOS—version 13, as we went to press. Visit Intel's SE440BX-2 BIOS update Web page (developer.intel.com/design/motherbd/se2/se2_bios.htm) for the download, installation instructions, and release notes that describe the fixes the download contains.

Other reported problems are a by-product of Windows 98 Second Edition's installation routines:

BUG If you use a Toshiba Portégé 7020 laptop with a docking station, the system won't awake from hibernation mode after you install Windows 98 Second Edition.

WORK-AROUND Toshiba's solution is to restart the system in MS-DOS mode; enter the command `halloc /r` at the DOS prompt, and then the command `halloc /c`; and reboot. This



I N B R I E F

Windows NT 4 Service Pack 6

BY THE TIME YOU READ THIS, Microsoft will probably be close to posting Service Pack 6 for its Windows NT Workstation and Server editions; look for a link to this download at www.microsoft.com/networkstation/downloads, along with information about ordering the update on CD-ROM.

Although SP6 contains Y2K and security patches not included in previous packs, Microsoft says it isn't a mandatory upgrade. As long as you've installed SP4 or later, you can continue to download critical Y2K fixes posted at www.microsoft.com/ntserver/nts/downloads/recommended/NT4y2kpostSP4/default.asp, and security patches listed at www.microsoft.com/security. If you have an earlier version than SP4, just download the latest pack available—soon to be SP6.

sequence deletes and rebuilds a necessary configuration file created during installation. Microsoft's Knowledge Base (support.microsoft.com/support/kb/articles/q231/6/72.asp) also reports that Windows 98 SE balks at a Toshiba power management driver installed on some systems, and suggests downloading an update from Toshiba first. To find out whether your system needs a driver or BIOS upgrade to be compatible with Windows 98 SE, start at Toshiba's support page (pcsupport.toshiba.com).

Toshiba also discloses a more widespread problem with its Equium desktop systems:

BUG After a user upgrades an Equium to Windows 98 SE, the system fails to boot and reports a memory parity error. The real problem is Win 98 SE's incompatibility with the Equium's existing ATI Rage video drivers (or vice versa).

WORK-AROUND In any case, if you own a Toshiba system, visit www.csd.toshiba.com. Click the Support tab, select your Equium model from the drop-down menu, and click Go; then click on the Support Bulletins link and scroll down until you find information on 'Memory Parity Error Detected, System Halted after installing Windows 98'.

Denizens of a Windows 98 newsgroup note a similar situation with Diamond's SupraMax modem. Apparently, upgrading to Win 98 SE installs an incorrect driver, even though a good driver is already installed. After the upgrade, the system reports frequent 'dpal' errors. The solution is to reinstall the V.90 upgrade drivers, which are available at www.diamondmm.com/products/56k/max-v90-upgrade.html.

B U G G E D ?

FOUND A HARDWARE or software bug? Tell us about it via e-mail at bugs@pcworld.com.



Find files mentioned in this article at www.fileworld.com/magazine. Scott Spanbauer is a contributing editor for PC World.

TOP OF THE NEWS

Internet Anywhere

ANALYSIS

THE WIRED WORLD is losing its wires. New wireless Internet technologies and products are making instant access to e-mail and the Internet as close as the PDA in your pocket or the cell phone in your purse.

New hardware products—ranging from wireless modems and data-ready phones to smarter pagers—make it easier than ever to access critical information whether you are near a phone line or not. And information providers including Microsoft and Yahoo are formatting their content for these new wireless devices, so you can get stock quotes, weather reports, and other info nuggets, as well as e-mail, wherever you are. Our hands-on evaluation of some recent products and services indicates wireless Internet access works surprisingly well.

That's not to say this brave new untethered world works perfectly. Finding a service that works wherever you roam isn't easy and probably won't be for some time. You can't buy off-the-shelf wireless hardware at random and expect it to work with any service provider. The tiny screens and keyboards on these new devices can turn reading and writing e-mail into unpleasant chores. Access speeds are poky, too—19.2 kbps is the norm. And though prices for that access have fallen, you can expect to pay a premium for a cable-free lifestyle.

SMART CHOICES

THE WIRELESS WORLD may seem complicated. But in it, as in the familiar wired world you're so accustomed to, you need three basic things to go online: a modem or some

other hardware device, a service provider that will connect that hardware to the Internet, and content to look at once you're connected.

The latest wireless modems are sleek, cheap, and easy to use. Take, for example, Novatel's Merlin Type II PC Card and Sierra Wireless's AirCard 300. Both are type II PC Cards with small, built-in antennas—meaning that they'll work with most notebooks and with many Windows CE handhelds. In addition, they're a breeze to operate: The \$549 AirCard 300 connects as soon as you boot up your Windows PC; the \$279 Merlin comes with a little app that you must click to initiate contact. Their 19.2-kbps speed does make for some pretty leisurely Web browsing—a high-end Web site page with several graphic elements can take a minute or

two to load—but their waiting times are tolerable, and they're perfectly adequate for e-mail.

SMOOTH OPERATOR

IF YOU OWN a digital cellular phone, you have another option: AirTouch Cellular, Sprint, and GTE offer cables for connecting your digital phone to your notebook PC's serial port. The resulting connections are slower—typically, 14.4 kbps—than those managed by the Novatel and Sierra modems.

If having to carry around extra cables bugs you, we have good news: A new technology dubbed Bluetooth will soon make them superfluous. Bluetooth is similar to infrared, but it can connect devices over a wider area. For example, you'll be able to dial up your ISP on a cell phone and then beam the connection to your laptop. And because Bluetooth- ▶

No strings attached: A new wave of wireless devices and services let you browse the **Web** and check **e-mail** wherever you are.

But don't expect peak performance. ♦ **By Yarden Arar**

JUST IN

**DVD-ROM and CD-RW
in One Device**

IF YOU'RE READY to upgrade your PC with a DVD-ROM or CD-RW drive, wait! Drives capable of handling both chores are on the way. Toshiba's first-of-its-kind SD-R1002 fits in any standard 5 1/2-inch PC bay despite being half the height of other drives. It offers 4X DVD-ROM playback and 4X CD-RW write speed. The first upgrade kits based on this drive should hit retailers' shelves in October and cost about \$400. Toshiba declined to name any third-party vendors planning to sell the retail kits. The drive should start appearing in desktop PCs early next year.

Return of the Amiga?

AMIGA, NOW OWNED by Gateway, plans to ship a multimedia PC by the middle of next year. The new box will be based on a fusion of Linux, Java, and selected elements of Amiga technology, says James Collas, president of Gateway's Amiga subsidiary. According to Collas, the PC will pave the way for new information appliances. Amiga hopes to ship the first of these—a wireless "Web pad" that allows users to pull digital content (like MP3 music or Web-based info) from the PC and view it from any room in the house—at about the same time it ships the PC. ▶



GET UP-TO-THE-MINUTE NEWS about computer products and Internet happenings from PC World Online's News area. Just point your browser to www.pcworld.com/pcwtoday.



Sharp Actiux A250



3Com Palm VII



Motorola PageWriter 2000x



NeoPoint 1000

enabled devices won't have to be in sight of each other to connect, you'll be free to print out your e-mail on a printer in a different room. Bluetooth-enabled products aren't yet available. But you can expect them to begin arriving early next year from many vendors in the 850-member Bluetooth Special Interest Group—which includes cell phone giants Ericsson and Nokia, as

well as notebook notables IBM and Toshiba (for the full list see www.bluetooth.com).

DOWNLOADS BY HAND

THE HOTTEST NEWS in wireless hardware, however, involves smaller devices—both handhelds (like the Palm Pilot) and cell phones and pagers—that let you download e-mail and browse the Web.

On the PDA front, the Palm VII offers out-of-the-box wireless access to the Internet via 3Com's Palm.net access service. Owners of the Palm III, IIIx, or IIIe can use Novatel's \$369 Minstrel III modem and service for e-mail and text browsing. And this fall, Novatel expects to ship the Minstrel E-15 modem for Casio's E-15 Windows CE palmtop.

PORTABLES ON PARADE:

Options for wireless Internet access include notebooks, PDAs, pagers, and phones. But speeds are slow and screens often too small for traditional browsing.

Two-way pagers like Motorola's new PageWriter 2000x and Research in Motion's Inter@ctive Pager let you send and receive e-mail. They also come equipped with micro-browsers, which grab stock quotes, news stories, and other Web information in a format small-screen devices can read. Unfortunately, composing mail on these pagers' teensy-weensy keyboards is no fun. (The PageWriter does let you select from a menu of brief prewritten messages such as 'Thank You' to save you typing.) Pager networks are slow—Skytel's maximum speeds are 9.6 kbps for down-

loads, 6.4 kbps for uploads—but access doesn't feel slow. E-mail messages arrive with a beep, like any other incoming page. But reading small text on a pager's dimly lit screen can strain your eyes, and most paging services will truncate long incoming messages.

You'll find similar capabilities in a host of new digital cellular phones, such as Qualcomm's QCP-860 and QCP-1960 thin phones (the 860 works on both digital and analog cellular networks, while the 1960 is digital only) and the NeoPoint 1000. These so-called smart phones let you send e-mail and receive some Web information; most also include built-in address books and contact managers. Screen quality tends to be better (but



Cut the Cords: Four Ways to Go Wireless

Wireless Internet access varies widely, from full-blown browsing on a notebook to news bulletins on a pager. Here's what you'll pay and what you'll get.

PLATFORM	What you'll need	What you'll get	Equipment costs	Monthly service costs
Notebook	Wireless CDPD modem, or digital cell phone with Bluetooth port or special serial cable hookup	All Internet apps, including e-mail and Web browsing	For wireless modem, \$279-\$500; for digital cellular phone cable, \$100-\$200	For CDPD, \$40-\$55; for digital cell phone, the surcharge for Internet connection depends on plan
Handheld	Device-specific wireless modem (Minstrel III for Palm III, or Minstrel E-15 for Casio's E-15; Palm VII has built-in modem)	E-mail, text-only browsing, MSN Mobile or other push services ¹	For wireless modem, \$379	For Minstrels, \$39-\$60; for Palm.net (Palm VII only), \$10-\$20
Pager	Two-way smart pager	E-mail, Web clipping service, MSN Mobile or other push services ¹	\$259-\$449	\$9-\$60, depending on usage
Cell phone	WAP-compatible digital cell phone	E-mail, Web clipping service, WAP-compliant application content, MSN Mobile or other push services ¹	\$399-\$499	\$40-\$100 for Internet and voice services

¹Surcharges apply for some services.



CABLE-FREE links:
Merlin (top) and
AirCard 300 PC Cards.

screen size is no larger) than on pagers; however, composing messages is even more irritating because you enter letters via a telephone keypad (hitting the 7 key three times to get the letter S, for instance).

NETWORKS, NETWORKS

HARDWARE ALONE is not enough. Notebooks and handhelds connecting via a digital cell phone can simply dial up a standard ISP. If you're using a wireless modem, however, you need a special data account—using the CDPD (Cellular Digital Packet Data)

protocol—from your cellular service. The reason: Whereas your cell phone connects to the public telephone system (through which you then connect to your ISP), wireless modems are designed to connect only to wireless data networks.

Bell Atlantic, AT&T, GTE, and Ameritech all offer CDPD accounts nationally; Omni-Point and others do the same thing regionally. Prices for these services have dropped in some instances. Bell Atlantic, for example, introduced its service at \$55 per month for unlimited access, and now charges \$40. Unfortunately, unlimited pricing applies only

within your network. If you roam, you incur steep charges for accessing other networks: AT&T charges 5 cents per KB, and Bell Atlantic 8 cents.

Wireless data networks are not universal. As the map at www.wirelessdata.org/maps shows, CDPD coverage is extensive in major metropolitan

If your business takes you to **Montana**, upstate New York, or the rural South, your **wireless modem** may suddenly be useless.

areas of the U.S. but sparse elsewhere. If your business takes you to Montana, upstate New York, or the rural South, for example, your wireless modem may suddenly be useless. Similarly, Metricom's proprietary 28.8-kbps Ricochet Internet access service is available only in Seattle, the San Francisco Bay Area, Washington, D.C., and 12 major airports nationwide.

PHONES GET SMART

HANDHELDS, PAGERS, and phones are another story. AT&T's pioneering PocketNet service began delivering Web-based content to CDPD cell

phones last year. But now major carriers including Sprint, GTE, and AT&T are rolling out new data services for smart phones on their digital networks, identified by such obscure acronyms as CDMA, TDMA, and PCS1900. These networks support more connections and will eventually move data at higher speeds than today's CDPD-based services. But initially the new services will run at a poky 14.4

kbps, so from a speed standpoint, CDPD—which can attain a maximum speed of 19.2 kbps—should remain attractive for now. Metricom's coming service—Ricochet2, due to arrive next summer in 12 cities—will reach 128 kbps. Cellular carriers say a third-generation type of digital cel-

CONTENT CRUNCH

lular service, due in or after 2001, will improve bandwidth further.

PHONES, PAGERS, and even handhelds may already access the Internet, but their display, memory, and bandwidth limitations make them rather unwieldy tools for full-scale Web browsing. Fortunately, new services cut the Net down to size for wireless devices.

If you sign up for Microsoft's MSN Mobile, you'll get customized weather reports, your daily horoscope, quotes for up to 10 stocks at preset times or price points, lottery results, and personalized reminders delivered to your pager, PDA, smart phone, or other e-mail address. Sprint PCS customers will soon be able to get their My Yahoo information by phone.

If you need more interactive information, you'll want ►

Help Desk on the Web

A NEW SITE, www.myhelpdesk.com, offers a free guide to Internet help resources for hundreds of popular PC and Mac hardware and software products. Users personalize the service at registration by checking off products of interest. Clicking a product brings up a list of relevant links, categorized by type of resource (tech support, tutorials, forums and chat rooms, upgrades, and so on). The service uses special icons to identify sites that charge fees. The company expects to make money by selling advertising on the site and by partnering with Web portal sites. After several months in public beta, MyHelpdesk.com was slated to launch on September 20.



Tidbytes

Faster Home Networking: Products based on a new specification will let PCs and other devices in the home communicate at speeds up to 10 mbps over the existing phone wiring—as fast as the standard ethernet LANs used in businesses. Earlier home phone-line products topped out at 1 mbps. Expect to see hardware—most likely in kits containing two ISA or PCI cards—by early 2000. Snap, Crackle, and Surf: As part of a push to sign up more people for MSN Internet access, Microsoft has partnered with General Mills. Buy products such as Cheerios, send in product code labels, and you can receive discounts on software such as Encarta and (if you're a new subscriber) a free month of MSN access.

something closer to 3Com's Palm.net for the Palm VII. With Palm.net, after you tap the E-trade icon on the application menu and fill in a stock symbol, E-trade delivers the quote. GoAmerica, a "wireless ISP," provides Web and e-mail access for Research in Motion's Inter@ctive pagers. Sprint plans to roll out similar services for PCS customers with smart phones this fall.

But information providers who want to go wireless have run into a problem: They've had to create different versions of their content for each wireless device. So a consortium of wireless businesses has developed a new protocol—the Wireless Application Protocol, or WAP. Any con-

tent in WAP form can be read by any WAP-compatible device.

WAP has already won the backing of major wireless carriers and hardware vendors:



New phones from Nokia, Motorola, Qualcomm, Samsung, Ericsson, Neopoint, and others will be WAP-compliant. Microsoft

WHICH WAY WIRELESS?

WHICH KIND of wireless Internet is for you? Notebook users can go with the cellular modem of their choice—perhaps Novatel's Merlin Type II PC Card or Sierra Wireless's AirCard 300—and a CDPD account. Palm VII owners are already set; and if you own a Palm III or IIIx, you can make

Carriers are **rolling out data** services on digital networks identified by such **obscure acronyms** as CDMA, TDMA, and PCS1900.

has announced its support, too, and 3Com plans to incorporate phone.com's WAP-compliant browser into the Palm OS. Expect to see the first WAP-compliant devices by the year's end.

the jump by getting a Minstrel modem and data account. If you're wedded to your digital phone, check your carrier's data offerings—and expect to pay a small surcharge. If you want to use your pager for

e-mail, try a RIM Inter@ctive pager with BellSouth Wireless Data service, currently priced at between \$25 and \$100 per month, depending on volume.

Whichever wireless data option you choose, you'll find staying connected to the Net is more practical than ever, even when you can't find a phone jack. As wireless hardware and service prices fall—and as speeds increase, coverage improves, and content proliferates—staying connected will get easier. To users suffering from information overload, that may sound like a curse. But if you need to stay in touch at all times, wireless Internet access will be a blessing.



For links to vendors mentioned in this article, visit www.pcworld.com/oct99/wireless.

Heads Up, Power Users: Athlon Hits 650 MHz



AMD'S BRAND-NEW 650-MHz CPU, the Athlon, rumbled to speed records on our Windows 98 tests and allowed AMD to pull farther ahead of Intel in the chip derby. On a variety of tests, an Athlon-650 reference desktop system—though not significantly faster than the average Athlon-600 PC we have tested—blew away the average Pentium III-600 machine by 14 percent or more. The best news: You won't have to pay any premium for all that speed. Fully

decked-out Athlon-650 systems should cost \$2500 to \$2700, which is about what



you would spend for a comparably equipped—but slower—Pentium III-600 PC. If you produce

multimedia content, do 2D or 3D modeling, or perform complex scientific calculations—or

if you simply *must* have the fastest of the fast—a system containing the new Athlon-650 should be on your shopping list. Price-conscious power fiends will find that Athlon-

600 systems, which cost \$200 to \$300 less, are a better deal.

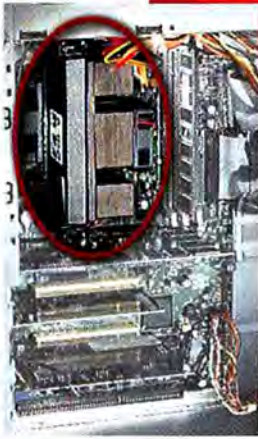
By mid-September, you'll begin to see Athlon PCs for home or small-business users from vendors such as Compaq, CyberMax, IBM, Polywell, and TigerDirect.

Why are Athlon systems so fast? First, the chip includes 128KB of L1 cache, four times

more than a Pentium III carries. AMD also added new floating-point units and enhanced the chip logic to accelerate apps that perform complex math operations.

These chip enhancements are most apparent when you run graphics programs and apps that tax floating-point performance. In our floating-point-intensive AutoCAD test, the 650-MHz Athlon was 27 percent faster than the average Pentium III-600. In our graphics-oriented tests with Caligari TrueSpace 4.1 and with the game Expendable, the Athlon-650 topped the PIIIs by almost 18 percent.

The Athlon-600 supplies most of these speed benefits as well, and Performance dif-



NEW SPEED CHAMP: AMD's 650-MHz Athlon processor.

ferences between it and the Athlon-650 were usually negligible. The AutoCAD test result, however, improved by nearly a minute on the 650—that's just a 5 percent boost, but if you're the one waiting, you may notice.

THE VIEW FROM THE TOP

WITH THE Athlon-600 and -650, AMD has graduated to the big leagues—posting a significant performance advantage over Intel's current offerings. AMD has had trouble producing enough chips to meet demand in the past, but that shouldn't be a problem with any of the

DESKTOP PCs TEST REPORT

AMD to Intel: Eat My Dust

SYSTEM	Processor	RAM (MB)	Level 2 cache (KB)	PC WorldBench 98 score
AMD Athlon-650 ¹	Athlon-650	128	512	290
Average of two systems	Athlon-600	128	512	277
Average of two systems	Pentium III-600	128	512	254
Average of ten systems	Pentium III-550	128	512	243

TEST **PC WORLD CENTER** **HOW WE TEST** All systems are tested with PC WorldBench 98, PC World's application-based benchmark. A higher PC WorldBench 98 score is better. For more details on our benchmark and how we run it, see www.pcworld.com/testing. Data based on testing conducted by the PC World Test Center. All rights reserved. ¹Demonstration PC made by AMD.

Athlons, according to Keith Diefendorff, editor in chief of *Microprocessor Report*.

So, if you need speed now, Athlon systems are worth a look. But if you can wait a few months, Intel will be shipping

faster PIII systems using its 820 chip set. This chip set, due out in late September, supports a 133-MHz front-side bus (the path from CPU to chip set) and 4X AGP graphics. Some systems using this

chip set will include Rambus DRAM, a fast new kind of memory. Early systems with this chip set will run faster, but they probably won't catch the Athlon.

Late this fall, Intel should release new Pentium III chips at speeds of 667 MHz or higher. How the new PIII PCs with faster memory and graphics will stack up against current and future Athlons remains

anybody's guess. Regardless, if you can wait, the competition at the top should drive down prices across the board and make these hot-rod PCs even more attractive.

—Anush Yeghazarian

AOL Unveils Version 5, Eyes PDAs, TVs, Even Gas Pumps

PREVIEW

AOL SEEMS to be feeling pretty cocky these days—and why not? As the world's largest online service, AOL has more than 17 million members, according to Forrester Research. Meanwhile, Microsoft Network, its nearest competitor, has a mere 2 million. But the proud new owner of Netscape is hardly resting on its laurels. By fall AOL will begin shipping a new version of its online software and upgrade its network to deliver video clips and other enhanced content to broadband users. AOL also plans to allow Palm users to access some of its services. You may even be able to hook up from specially equipped gas pumps at service stations. Despite its big plans, AOL

faces challenges from such formidable competitors as AT&T, which is hobbling the online giant's efforts to offer high-speed Internet access to its many customers.

A PEEK AT AOL 5

THOUGH MOST new features of version 5 weren't ready for testing at press time, AOL disclosed several key additions to its online software for veteran AOLers and novices alike.

An improved search engine permits you to comb through America Online and the Web simultaneously—a first for AOL and a definite time-saver. Query results appear under three tabs in a browser window: The first tab shows AOL hits, the second shows Web hits, and the third lists other



AOL'S WELCOME SCREEN features prominent icons for the service's new You've Got Pictures and My Calendar features. Buttons along the left side provide fast access to popular content.

resources (such as online yellow pages) that you can search for more information. Unfortunately, the search screen does not include links to other popular Web search engines—for instance, Google and AltaVista—that might scare up additional (and in some cases more relevant) hits.

Version 5 will also feature My Calendar, a personal or group scheduler that AOL users can access from work, home, or wherever there's a PC with AOL on it. Since your scheduling information will reside on AOL's server rather than on your PC's hard drive, you'll be able

to read and update your calendar from various locations.

The group-scheduling feature, another advance, lets you authorize other AOL members to read or post changes to your calendar. For instance, you might permit staff or clients to schedule meetings for you.

One drawback: My Calendar won't work unless your PC has AOL software loaded on it—a browser alone won't do. Since many corporate networks don't allow AOL use, many AOL subscribers won't be able to view their schedules from work. However, AOL promises to fix that problem later this year. Eventually, even nonmembers will be able to access members' schedules.

NO SCANNER REQUIRED

A NEW FEATURE of You've Got Pictures will make it easier to import and organize photographs online. Here's how it's expected to work: When you drop off a roll of film at your neighborhood photo developer, you'll simply check the America Online box on the film envelope; within 48 hours, you'll be able to view your photographs in an AOL "album" online. You can then e-mail images to friends and family, or permit other AOL members to view your album. (You'll still pick up your prints

from the developer yourself.)

Many of the major photo processing companies, including Rite-Aid, Target, and Albertsons, will support You've Got Pictures, according to AOL. The film developers will

lets them send and receive AOL Mail. Later this year, Palm VII units will ship with AOL Mail preinstalled; an AOL CD with the necessary software will accompany Palm III and V units. But even so, Palm

ness for itself.) Still, many analysts believe the combination of ISP-sponsored court challenges, federal legislation, local government rulings, and market forces may ultimately force AT&T to open its network.

But AOL isn't just waiting around in the meantime. It recently inked agreements for high-speed DSL Internet access with regional telephone companies, including Ameritech, Bell Atlantic, GTE, and SBC Communications. As a result, for instance, Ameritech and SBC subscribers in selected states will soon be able to receive high-speed AOL for an extra \$20 per month. In addition, last June AOL invested \$1.5 billion in Hughes Electronics, thereby ensuring delivery of a service called AOL TV via Hughes' DirecPC satellite service. AOL and Hughes are also developing a two-way satellite service for Internet access. (DirecPC is download only; users upload data via a modem connection.)

AOL EVERYWHERE

REGARDLESS OF the outcome of these byzantine boardroom machinations, America Online users are sure to end up sitting pretty. Subsequent versions of AOL will continue to offer plenty of worthwhile enhancements. Although the company must still dismantle some roadblocks obstructing its ability to offer high-speed Internet access, it is taking aggressive action to overcome those problems. And as an industry leader, AOL's moves raise the ante in the online world and should force competing ISPs to offer similar services—which is certainly good news for everyone.

—Jeff Bertolucci ►



ALL IN ONE: America Online 5's improved search engine displays AOL and Web hits in a single browser window.

charge a small fee, typically \$6, for the scanning service. AOL plans to phase in the service by the end of the year.

Version 5 offers other enhancements, too. You can retrieve deleted e-mail for up to 24 hours—a long-overdue feature. The enhanced Address Book will be server based, so you can access it from different PCs. AOL also revamped the Welcome Screen.

AOL IN YOUR HAND

USERS OF 3Com's Palm handhelds will appreciate a new version of the software that

users won't be able to access all AOL features from their PDAs. AOL plans to give cell phone users similar capabilities. Finally, AOL intends to let customers access e-mail, road maps, and other information via touch-screens installed on gas pumps at service stations.

When it comes to giving customers high-speed Internet access, America Online is struggling. AT&T, owner of cable TV giant TCI, has prevented AOL and other ISPs from offering Net access via its extensive cable network so far. (Ma Bell wants that lucrative busi-

You've Got New Versions

VERSION	Key features	Availability	Price
AOL 5	Improved search engine, My Calendar, You've Got Pictures.	Fall 1999 ¹	Free download
AOL Plus	Enhanced content, such as video clips, for cable-modem, DSL, and other broadband users.	Fall 1999	Free for AOL 5 subscribers
AOL for PalmPilot	Lets PalmPilot users access AOL e-mail but not other content.	Fall 1999	Free for members with unlimited monthly plans
AOL TV	Permits DirecTV subscribers to get AOL-style content via a set-top device.	Sometime in 2000	To be determined

¹ You've Got Pictures will be phased in nationwide over several months.

SONY



Linda took her therapist's advice to "love herself more" a little too seriously.

Unlimited printouts

No other camera lets you do more with pictures than the Sony Digital Mavica® camera. It's the only digital camera that lets you capture and store your images on a floppy disk. No messy wires. No annoying adapters. And with 1.3 million pixels, you'll get the image quality to make beautiful full-color prints at home, at work, online or from your local photo shop. The fun is up to you.

1.3 MegaPixels, 60-sec. MPEG Movie, 8X Optical Zoom, up to 500 shots/battery charge

Digital Mavica® THE FUN IS IN THE FLOPPY™



To order a video brochure on all Sony Digital Camera products, call 1-800-295-0693. \$4.95 for shipping and handling. (MC, VISA, AMEX accepted.) www.sony.com/image

©1999 Sony Electronics Inc. All rights reserved. Reproduction in whole or part without written permission is prohibited. Simulated picture. Sony, The Fun Is In The Floppy and Digital Mavica are trademarks of Sony.

BUY A MICRON SER



NetFRAME® 2101

High-Powered Servers for
Fast-Growing Businesses

\$64/mo. **\$2099**
Factory
Direct Price

Business Lease 48 mos.⁰⁰

- Intel® Pentium® II processor 400MHz
- 64MB ECC 100MHz SDRAM
- 9GB Ultra-2 SCSI hard drive⁰
- 40X CD-ROM drive⁰
- 5-year/3-year Micron PowerSM limited warranty
- Dedicated server technical support, 7x24
- 1-year next-business-day on-site service
- Intel LANDesk® server manager
- Emergency Management Port Console
- 5 expansion slots: 3 PCI, 1 ISA, 1 shared PCI/ISA
- 10 drive bays: 1 external 3.5", 3 external 5.25"
- 6 internal 1.0" hard drive bays (108GB max.)



©1999 Micron Computer Systems, Inc. All rights reserved. Micron Computer Systems, Inc. is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and return and warranty periods begin from the date a product is shipped, not when it arrived. A restocking fee may be charged upon the return of a product. All sales are controlled by Seller's current terms and provision of on-site service. Intel, the Intel Inside Logo and Pentium are registered trademarks and Pentium II Xeon and Celeron are trademarks of Intel Corporation. Microsoft, Windows NT and the Windows logo are identification purposes only and may be trademarks of their respective companies. Note: advertised configurations may differ from award-winning configurations. ⁰All hard drive sizes calculated with 1GB equal to 1 billion ⁰⁰On-site service for NetFRAME servers is provided by an independent service provider and is only available in the United States. ⁰⁰Micron Leasing arranged by an independent entity to qualified commercial customers, notice or obligation. ⁰Free Micron desktop offer limited to select desktop configurations. Contact Seller for information about specific configurations, details. Offer valid only with purchase of Micron NetFRAME

ORDER DIRECT 1-800-825-4850

VER, GET A FREE PC.

Now it's easier than ever for your growing business to expand its networking capabilities. Purchase any Micron™ NetFRAME server and we'll give you a free Micron Millennia VX desktop PC.* No strings. No gimmicks. No hassles. Just the rock-solid performance of our Micron NetFRAME server line. Consider our NetFRAME 2100. This entry-level server offers a high-performance platform and is specifically designed for the needs of small businesses. Our NetFRAME 3100 server gives you added expandability, plus hot swap hard drive capability. Network-ready, right out of the box, built on industry standards and packing the power of Intel® processors, the NetFRAME puts manageable power in your business. And of course, our servers and desktops are Windows® 2000 ready and NSTL Y2K compliant, so you can relax knowing your journey on the road to success will continue at a smooth and rapid pace. So call today, and get your free Micron desktop system with the purchase of a NetFRAME server.



Model Name	NetFRAME 2101	NetFRAME 3101	NetFRAME 3100
Processor	Intel Pentium II processor 400MHz	Intel Pentium III processor 500MHz	Intel Pentium III processor 500MHz
RAM	64MB ECC 100MHz SDRAM	128MB ECC 100MHz SDRAM	128MB ECC 100MHz SDRAM
Hard Drive	9GB ³ Ultra-2 Wide LVD SCSI hard drive	9GB ³ Ultra-2 Wide LVD SCSI hard drive	9GB ³ Ultra-2 Wide LVD SCSI hard drive
Cache	512KB internal L2 ECC	512KB internal L2 ECC	512KB internal L2 ECC
CD-ROM	40X var. ⁴ speed CD-ROM drive	40X var. ⁴ speed CD-ROM drive	40X var. ⁴ speed CD-ROM drive
Network	Integrated Intel PRO/100+ server adapter	Integrated Intel PRO/100+ server adapter	Integrated Intel PRO/100+ server adapter
Service	5-yr./3-yr. Micron Power limited warranty	5-yr./3-yr. Micron Power limited warranty NOS support (3 incident resolutions/1st year)	5-yr./3-yr. Micron Power limited warranty NOS support (3 incident resolutions/1st year)
Software	Intel LANDesk [®] server manager	Intel LANDesk server manager	Intel LANDesk server manager Microsoft Windows NT [®] server 4.0
Other Features	Integrated SCSI controller	Integrated SCSI controller	Hot swap hard drives
Factory Direct Price	\$64/mo. \$2099 <small>Business Lease 48 mos.¹¹</small>	\$82/mo. \$2699 <small>Business Lease 48 mos.¹¹</small>	\$118/mo. \$3899 <small>Business Lease 48 mos.¹¹</small>



specifications may be changed without notice; prices do not include shipping and handling and any applicable taxes. Seller's return policy does not include return freight and original shipping/handling charges, and all conditions of sale. On-site service is provided at the sole discretion of Micron Computer Services, Inc. A diagnostic determination for on-site service must be made by a service technician prior to the registered trademarks of Microsoft Corporation. Product names of Micron products are trademarks or registered trademarks of Micron Electronics, Inc. Other product names used in this publication are for bytes. ³One year free with purchase of new Micron desktop or notebook system. Free subscription does not include books or software. ⁴CD-ROM speeds: 40X max./17X min.; 32X max./17X min.; 24X max./12X min. Listed lease payments based on 48 months, FMV terms and do not include taxes, fees or shipping charges. Leasing subject to credit approval and availability. Listed lease terms subject to change without server at suggested listed price without discounts. Offer may be canceled at any time by supplier. If NetFRAME server is returned under Seller's money back policy, free Micron desktop must also be returned.

SHOP ONLINE WWW.MICRONPC.COM

Battery Breakthrough: The 15-Hour Notebook



IT'S MURPHY'S law of notebook batteries: Your machine runs out of juice just when you need it most. That is, unless you're carrying a new type of external notebook battery that offers unheard-of stamina. In our test of a preproduction Electrofuel PowerPad 160 battery, the unit ran an IBM ThinkPad 560 Pentium MMX-233 notebook for 15 hours. That's about *five times* the life of that ThinkPad's standard battery.

Electrofuel's breakthrough is welcome news: Speedy notebook chips, extra-big screens, and entertaining DVD-ROM drives work great but consume power in huge gulps. Yet lithium ion battery technology, today's standard, was invented way back in the 1940s.

How did Toronto-based Electrofuel improve lithium ion batteries? By using highly efficient packaging and a proprietary chemical process.

TIME IS ON YOUR SIDE

THE COMPANY'S debut product, the \$499 PowerPad 160, is a rectangular, 3/8-inch-thick battery that sits underneath a laptop, connecting to the AC adapter jack. The battery was available only for select IBM and Acer notebooks at press time; Electrofuel plans to ship model-specific versions for various Dell, Toshiba, Compaq, and Apple portables by late September or October.

Though the results sound too good to be true, even our

most skeptical testers were impressed when the PowerPad 160 extended the ThinkPad 560's battery life from 3 hours and 4 minutes to 15 hours and 1 minute. The mileage you get will vary, depending on your notebook and its AC adapter; Electrofuel says that its battery can last for up to 16 hours, but it may also last less than the 15 hours we achieved.

The possible disparity in results is attributable to differences among AC adapters. The PowerPad's 14.8-volt output is a bit lower than the output of some other notebooks' adapters. To obtain

the internal battery. With the notebook's internal battery in place, the run time shrank to 12 hours and 20 minutes.

The primary disadvantages of the PowerPad are its cost and its added weight of 2.2 pounds (the ThinkPad 560's battery is a relative featherweight at 10.6 ounces). But Electrofuel plans to ship lighter, less expensive versions by early November. The \$199 PowerPad 80 will be rated to last up to 8 hours,



It Just Keeps Going and Going

BATTERY	Battery life (hours:minutes)
PowerPad 160 battery	15:01
Standard battery	3:04

TEST HOW WE TEST Using an IBM ThinkPad 560 with a Pentium MMX-233 and 32MB of RAM, we drain and fully recharge the battery twice and set power-saving options to match a consistent profile. Office workers use Windows 9x applications, periodically saving and allowing regular idle time. Notebooks are rotated among workers. We report the time elapsed when the notebook shuts itself off. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

optimal results from the PowerPad, notebooks need an AC adapter that runs at 16.8 volts or higher. Also, the PowerPad partially charges a notebook's internal battery at the same time it powers the notebook. Because some overhead is involved, you'll get maximum longevity by taking out the internal battery and running the notebook with just the PowerPad. We achieved the 15-hour result after removing

and the \$299 PowerPad 100, up to 10 hours. These versions should have broad appeal.

At the other extreme, the 2.5-pound PowerPad 210 (\$799), slated to ship in November, will offer up to 21 hours of run time, Electrofuel says.

HOW'D THEY DO THAT?

JUST HOW CAN Electrofuel squeeze so much life from a lithium ion battery? The PowerPad batteries have more



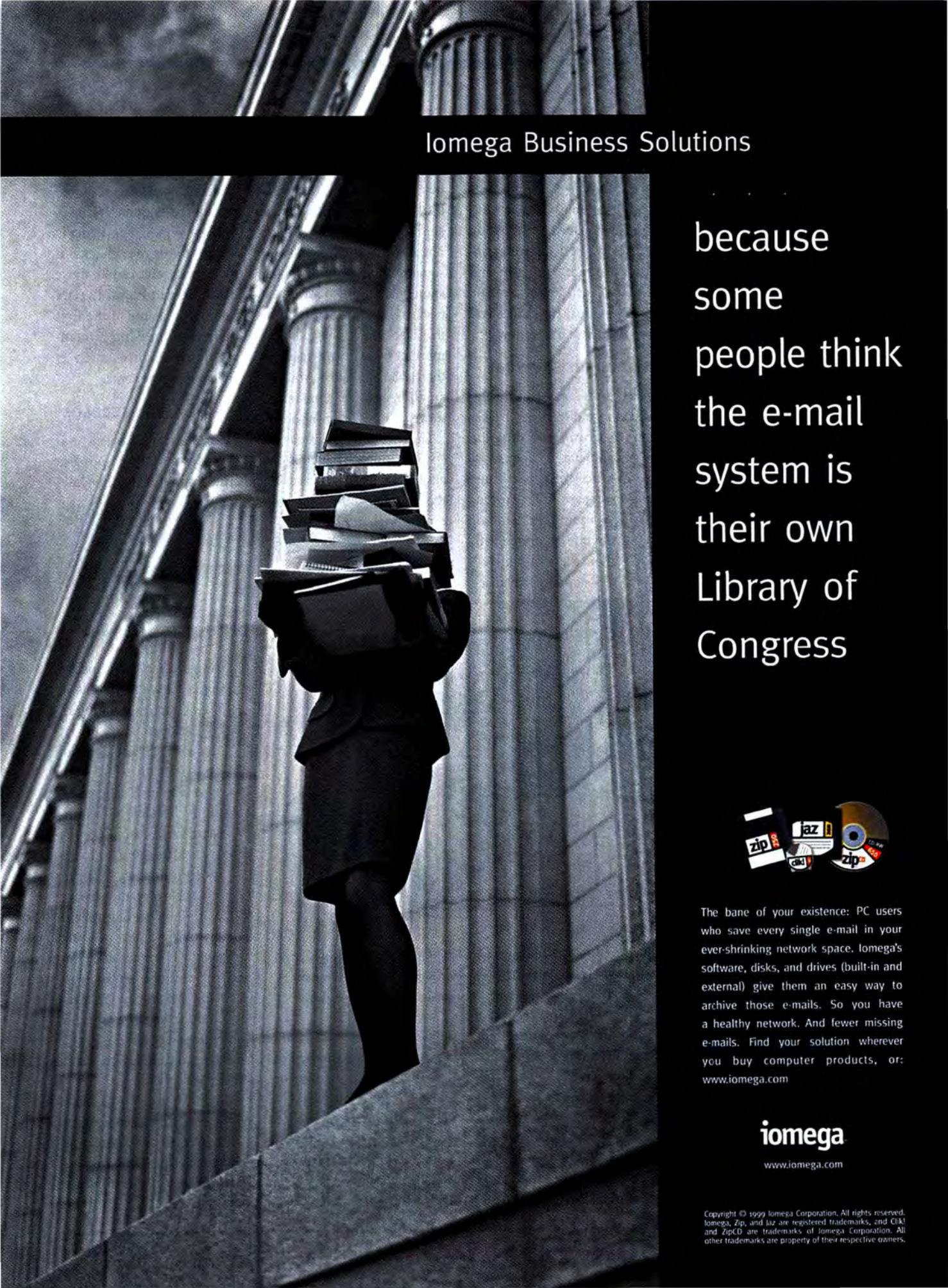
than twice as much energy density—the amount of power per unit of space—as conventional lithium ion batteries, says Electrofuel vice president David Murdoch. Up to 22 percent of a standard battery consists of wasted space because of packaging and design requirements, he says. Electrofuel's super polymer technology dedicates virtually all the space to the battery itself, and it dispenses with the usual metal package for supporting the battery cells, which can be made as thin as 1 mm. A proprietary chemical process also helps increase energy density.

Electrofuel is working with notebook makers to produce internal PowerPad batteries; they should debut in portables next year. For now, road warriors can relish the PowerPad 160. It's about time someone helped you break Murphy's law of notebook batteries.

—Stan Miastkowski ▶

PowerPad 160

List price: \$499; Electrofuel; 416/535-1114; www.electrofuel.com
PRODUCT INFO NO. 752



Iomega Business Solutions

because
some
people think
the e-mail
system is
their own
Library of
Congress



The bane of your existence: PC users who save every single e-mail in your ever-shrinking network space. Iomega's software, disks, and drives (built-in and external) give them an easy way to archive those e-mails. So you have a healthy network. And fewer missing e-mails. Find your solution wherever you buy computer products, or: www.iomega.com

iomega

www.iomega.com

Copyright © 1999 Iomega Corporation. All rights reserved. Iomega, Zip, and iaz are registered trademarks, and Click! and ZipCD are trademarks of Iomega Corporation. All other trademarks are property of their respective owners.

New Business PCs Are Smaller, Simpler, Easier to Service

CALL IT THE latest space race: PC makers are competing to build a new breed of corporate desktops small enough to fit into the coziest of cubicles and yet so easy to service that you won't need a rocket scientist on your staff. We're not just talking about cases that are compact or that open without tools. Designers have been rethinking and reworking the interiors of these computers

and other key components very accessible. Corporate PC designers have been thinking critically about the relationship between function and end-user costs, too; as a result, the new desktops save you money in two different ways.

DOUBLE SAVINGS

FIRST, THE easier troubleshooting and servicing a desktop PC become, the lower the associated expense is. Since these machines can save in-house staff members' time or obviate a service call, they're a fiscal win.

Second, office space

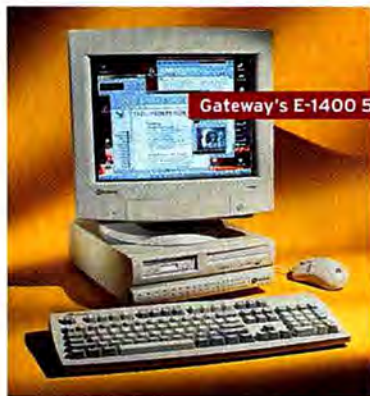
information Group. "And you don't have to pay a premium for the slim form-factor cases." True, not all offices will be able to squeeze more people into the same amount of floor space because of slim PCs. But in that case, people will gain a bit more personal work space as their PCs lose bulk. And the smaller cases are easier to move around, Enderle adds.

Those advantages are easy to see, but so is one potential disadvantage: The slim cases on these models offer little expansion room. The three systems we looked at had two expansion slots and no free drive

when the need arises for more power or additional features, Enderle says. If upgrading is important to you, check out full-size machines like those in the Hewlett-Packard Vectra line: HP was one of the first makers to implement manageability features such as slide-out components.

SIMPLICITY SUCCEEDS

THOUGH THE THREE machines we evaluated possess similar footprints, the Gate-



Gateway's E-1400 500

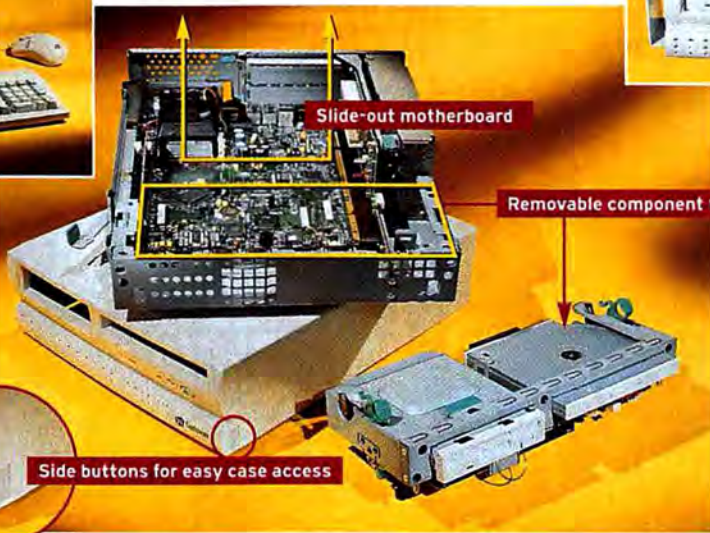


Rails that hold PC under desk

from top to bottom, eliminating cables, increasing drive accessibility, and relocating PCI slots in a pop-out tray.

Slim, serviceable cases are appearing across this fall's corporate desktop lines. To illustrate, here's a peek inside a Celetron-500 system from Gateway and Pentium III-500 PCs from Compaq and Dell.

Who's to thank for the current interest in system design? Apple. The success of its iMac and G3 desktops convinced PC vendors that looks matter, even to business customers. Unlike standard desktops, the G3 is housed in a colorful, eye-catching case that opens easily, making the motherboard



Slide-out motherboard

Removable component tray

Side buttons for easy case access

WHAT'S MISSING? The usual tangle of PC cables. Gateway has simplified the interior design by placing floppy, CD-ROM, and hard drives on a tray that snaps into the motherboard via a riser card.

represents a big budget item for companies in high-rent locations and for businesses that are constantly adding employees. "Space is more expensive than hardware," says Rob Enderle, vice president of desktop and mobile technology for GIGA Infor-

bays, whereas most mainstream cases have two or three free bays. That's a serious drawback for many home PC buyers. However, a number of corporate buyers no longer bother to upgrade aging PCs. Because systems are so cheap, they simply buy new ones

way E-1400 500 wins the prize for sveltest profile, at 11.25 inches wide by 14 inches deep by 3.5 inches high. The Compaq and Dell units are both about an inch deeper and an inch wider, but a standard business desktop is a desk-hogging 30 to 40 percent bigger. You can conserve even more space with the Gateway system by using a new product created by Herman Miller, an office furniture company in Zeeland, Michigan: It's a set of rails for hanging the PC box underneath a desk. Ordered from Gateway, they cost about \$69 per set.

Gateway's E-1400 500 also makes a striking impression with the case open. Gateway puts the floppy, CD-ROM, and hard drives in a removable tray that connects to the

*May the road rise up to meet you.
May the wind be at your back.
May your Internet dial-up number never be busy.*

Easy set-up. Fast connections. A reliable network. And a support staff so helpful we win awards for it. It comes down to this: We believe getting on the net should be a simple, fun experience. And we do everything we can to make it that way. Visit us at www.mindspring.com.



You'd be happier using **MindSpring** Call 1-888-MSPRING and get your first 30 days free.

Circle 57 on card or go to www.pcworld.com/productinfo



\$741 to \$845 more than the Gateway machine, but considering their faster processors and larger monitors, they're still budget-friendly. At \$1943, our Dell OptiPlex GX1 S came loaded with 128MB of RAM, a 13.6GB hard drive, an ATI Rage Pro Turbo 2X AGP graphics chip with 8MB of SGRAM, a 10X-24X CD-ROM

desktop is to steal? All three systems offer lock options to keep the PC fixed to your desk and to prevent the case from being opened by intruders.

EVEN SMALLER CASES SOON

IF YOU THINK that these slim systems make a lot of sense now, you'll be pleased to

learn that their designs will get even better before the end of the year. PC designers are planning to shrink systems a bit further by using a new, smaller motherboard from Intel called the FlexATX. This component is also being designed to support unusual case shapes and sizes.

Look for more creative home PCs and sleeker business PCs by the year's end. "The

vendors have seen the popularity of the Palm 5, the cell phone craze, and other product areas where IT buyers will sometimes choose one product over another because of how it looks," says GIGA analyst Enderle. "You'll see differing industrial designs that fit in an office décor and don't look out of place."

The space race should continue well into the year 2000, and workers have only one thing to lose—the clunky beige box that's appropriated so much of their desk space over the years.

—Laurianne McLaughlin ►

LIVING ROOM: The new breed of business desktops frees up desk space and gives you easy access to critical components.

motherboard via a riser card, a trick that avoids the usual tangled nest of drive cables. The tray pops out at the press of two levers, as do the motherboard and the power supply.

Like its peers, Gateway's motherboard integrates as many functions as possible, including a 10/100 LAN card, various audio components, and a graphics chip set (in this case, the Intel 810 with 4MB of display cache). The result: less clutter inside the system and a modest price of \$1098 for a sturdy configuration with 64MB of RAM, a 6.8GB hard drive, a 12X-24X CD-ROM drive, Windows NT 4.0, and a 15-inch monitor.

PETITE PIII-500S

BESIDES BEING fast, the PIII-500-based models from Compaq and Dell—the Deskpro EN Small Form Factor 6500+ and the OptiPlex GX1 S, respectively—both perform a particularly useful trick: A small corner-fitting tray in the upper left of the case lifts up and out when you press a lever, affording unobstructed access to the expansion slots—one PCI and one PCI/ISA



combo slot in the Compaq, two PCI slots in the Dell.

Both systems make adding memory or swapping out the drives easy. Inside the Dell, a tray holds the floppy and CD-ROM drives; this tray in turn slides out to reveal the hard drive and power supply. Compaq handles the same problem in its own way: The tray holding the floppy, CD-ROM, and hard drives tilts up, so you can take out the drives or access the motherboard underneath. To complete the mobility parade, the Compaq's motherboard slides out on a tray.

These two PIII systems cost

drive, Harman/Kardon HK195 speakers, and a 17-inch monitor. To conserve desk space, many people prefer flat-panel displays to standard monitors; the Dell costs \$2778 with a 15-inch flat-panel monitor.

Our Compaq Deskpro EN Small Form Factor 6500+ was packed with 64MB of RAM, a 6.4GB hard drive, an ATI Rage Pro Turbo 2X AGP graphics chip with 4MB of SGRAM, a 10X-24X CD-ROM drive, and integrated speakers. It costs \$1839 with a 17-inch standard monitor or \$2729 with the 15-inch flat-panel monitor. Worried about how easy a smaller

Compaq Deskpro EN Small Form Factor 6500+

\$1839 with 17-inch monitor, \$2729 with 15-inch flat-panel monitor; Compaq; 800/345-1518; www.compaq.com
PRODUCT INFO NO. 753

Dell OptiPlex GX1 S

\$1943 with 17-inch Dell M770 monitor, \$2778 with 15-inch Dell 1500FP flat-panel monitor; Dell; 800/388-8542; www.dell.com

Gateway E-1400 500

\$1098 with 15-inch monitor; optional set of rails for under-desk installation of PC box, \$69; Gateway; 800/315-2536; www.gateway.com
PRODUCT INFO NO. 754



LG *is* TECHNOLOGY

www.lgeus.com



Computer Monitors

What exactly can 35,000 people in over 120 countries do? Just about anything

they set their minds to. Such as create the next generation of TFT-LCD flat panel displays.



PC Cameras

Or develop tomorrow's DVD and CD ReWritable drives. Today's LG

is all of this and more. As one of the world's largest

electronics companies, we are using our knowledge and resources to push the limits of what's possible. Making the things that make every

new day a little better than the day before.

LG is innovation. LG is performance.

LG is technology.



Optical Disc Storage



CD REWRITABLE
DRIVES

PC CAMERAS

DVD-ROM
DRIVES

MONITORS

CD-ROM
DRIVES



© 1999 LG Electronics U.S.A., Inc. All trademarks and registered trademarks are property of their respective owners.

Circle 96 on card or go to www.pcworld.com/productinfo

(800) 243-0000

OSHA Seeks Cure for PC Pain: Employees Gain, Businesses Complain

ANALYSIS
THE OCCUPATIONAL Safety and Health Administration has long threatened to make your cubicle a safer place to work. Now, it looks like OSHA may finally make good on that threat.

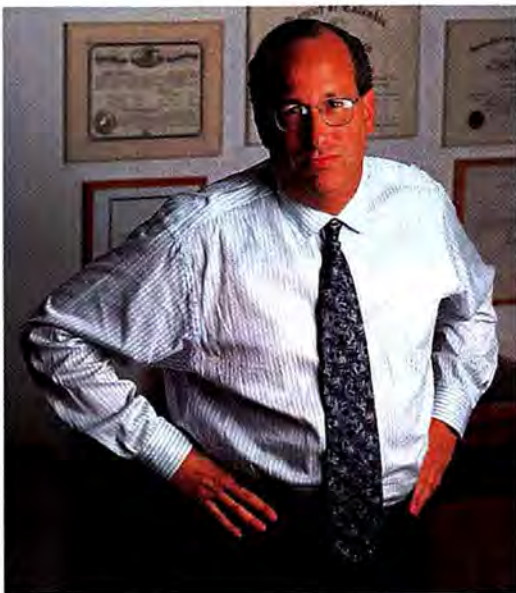
For the first time, the federal agency is trying to establish a set of mandatory standards for workplace ergonomics. OSHA says these regulations could simultaneously save many office workers from serious harm and help employers avoid incurring high workers comp costs. Not surprisingly, business trade groups beg to differ, and a measure recently passed by the House of Representatives could delay implementation of the standards until 2001.

WORKERS AT RISK

THE PROPOSAL is so complex that OSHA has posted flowcharts and FAQs online to explain it (www.osha-slc.gov/SLTC/ergonomics). But in rough outline, here's how the plan would work:

Let's say you developed a work-related musculoskeletal problem (defined as "injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage, and spinal disks"). As soon as a health care professional confirmed

the problem, your employer would be required to figure out whether other workers who perform similar tasks are also at risk. If so, the business



NEAL TASLITZ, of the National RSI Association, supports OSHA's ergonomics proposal. Business groups don't.

would then have to provide training and protective equipment to you and all other at-risk employees.

In addition, your employer would have to give you access to professional evaluation and treatment. If a health care professional recommended work restrictions for you to avoid further injury, your employer would have to maintain your prior level of earnings, seniority, and benefits for up to six months.

BODY POLITIC

BUT THE PLANNED standards have far to go before they become law. OSHA issued an initial draft last February. Then, in May, the agency convened a small-business advocacy review panel to assess that proposal. After reviewing the draft, the panel issued a detailed response. Predictably, panel members took exception to many elements of the pro-

posal—especially OSHA's estimate that implementing the rules would cost \$800 per affected employee. One small-business owner who reviewed the proposal claimed that his compliance costs would be closer to \$20,000 per employee. The proposal is scheduled for publication in the *Federal Register* in late September, allowing for public comment, and hearings will then be held all over the country.

To no one's surprise, the issue has become highly politicized. "As a practical matter, this is going to have extremely strong opposition," says Neal Taslitz, executive director of the National RSI Association. "Anything with the taint of regulation is going to be viewed as government interference with business." He characterizes opponents of the regulations as "the same groups that lobbied against seat belts in the 1960s."

That opposition took shape this summer, when the House of Representatives voted 217 to 209 to force OSHA to suspend its rule-making process until the National Academy of Sciences completes its own report on workplace ergonomic risks. (While Congress does not vote directly on OSHA regulations, it can pass laws to cut their funding or delay their implementation.) The NAS report isn't due to Congress until the spring of 2001.

President Clinton opposes the House bill to curb OSHA and has threatened to veto it and a similar measure making the rounds in the Senate. Our advice to end users and business owners alike: Stay tuned to the OSHA Web site for further developments.

—Glenn McDonald ►

Proposed Rx for RSI

IN A NUTSHELL, the proposed OSHA ergonomics standards would require the following:

- If one worker reports a work-related musculoskeletal problem, the business must find out whether other workers are at risk.
- If others are in danger, the business must provide them with training and protective equipment and must give employees access to professional evaluation and treatment.
- If a health care professional recommends work restrictions for an employee, the employer must maintain the employee's earnings, seniority, and benefits for up to six months.

The standards don't mandate specific remedies—such as ergonomic office chairs or mandatory break periods—but employers with reported problems are subject to inspections by OSHA.

The iiyama TrueFlat series. See, and feel, the difference.

The addition of the TrueFlat series to the award-winning family of monitors from iiyama is really something to see. Experience for yourself the benefits of these new, flat screen monitors. This advanced technology brings to you a brighter, sharper image that reduces the stress, and strain, on your eyes.

With amazing refresh rates, the resolution will provide you with unparalleled viewing performance. Add to this the TCO '99 certification and you'll know why the TrueFlat series of monitors from iiyama can make the difference.



VisionMaster Pro 410 – \$469 ESP
Resolution 1600 x 1200 @ 75hz
AG pitch 0.25mm center
Horizontal frequency 27–96khz

VisionMaster Pro 450 – \$699 ESP
Resolution 1800 x 1440 @ 80hz
AG pitch 0.25mm center
Horizontal frequency 30–115khz

VisionMaster Pro 510 – \$1229 ESP
Resolution 2048 x 1536 @ 80hz
AG pitch 0.25mm center
Horizontal frequency 30–130khz

CRT Monitor Model/ Viewable Area	TCO	Dot Pitch/ CRT Type	Max. Horizontal Scan Rate	Max. Resolution	Est. Street Price
22" VisionMaster Pro 510 (20.0" VIS)	TCO '99	0.25mm/AG	130khz	2048 x 1536 @ 80hz	\$1229
21" VisionMaster Pro 502 (19.5" VIS)	TCO '95	0.28mm/AG	110khz	1800 x 1440 @ 75hz	\$999
VisionMaster Pro 501 (19.5" VIS)	TCO '95	0.28mm/AG	96khz	1600 x 1200 @ 75hz	\$939
VisionMaster 502 (19.5" VIS)	TCO '95	0.22mm/H	110khz	1800 x 1440 @ 75hz	\$999
19" VisionMaster Pro 450 (18.0" VIS)	TCO '99	0.25mm/AG	115khz	1800 x 1440 @ 80hz	\$699
VisionMaster 450 (18.0" VIS)	TCO '95	0.22mm/H	102khz	1600 x 1200 @ 80hz	\$559
17" VisionMaster Pro 410 (16.0" VIS)	TCO '99	0.25mm/AG	96khz	1600 x 1200 @ 75hz	\$469
VisionMaster Pro 400 (16.0" VIS)	TCO '95	0.25mm/AG	96khz	1600 x 1200 @ 75hz	\$399
VisionMaster 400 (16.0" VIS)	TCO '95	0.26mm/dp	96khz	1600 x 1200 @ 75hz	\$379
S702GT (16.0" VIS)	TCO '95	0.28mm/dp	96khz	1280 x 1024 @ 85hz	\$299
15" VisionMaster 350 (13.7" VIS)	MPR-II	0.28mm/dp	69khz	1280 x 1024 @ 65hz	\$219
TFT/LCD Monitor Model	TCO	Pixel Pitch	Max. Horizontal Scan Rate	Max. Resolution	Est. Street Price
14.1" Pro Lite 30a (with OSD)	TCO '95	0.297mm	62.5khz	1024 x 768 @ 75hz	\$839
15.0" Pro Lite 38a (with OSD)	TCO '95	0.297mm	62.5khz	1024 x 768 @ 75hz	\$1079
Pro Lite 38b (with OSD, USB & Speaker)	TCO '95	0.297mm	62.5khz	1024 x 768 @ 75hz	\$1129
15.4" Pro Lite 30a (with OSD, USB & Speaker)	TCO '99	0.2385mm	80khz	1280 x 1024 @ 75hz	\$1999
18.1" Pro Lite 40a (with OSD, USB & Speaker)	TCO '99	0.2805mm	80khz	1280 x 1024 @ 75hz	\$3329

SEE US AT PC EXPO
BOOTH 3172

iiyama

SEE US AT PC EXPO
BOOTH 3172

For the name of your local dealer call: (800) 394-4335 • www.iiyama.com

© 1999 iiyama North America, Inc. All rights reserved. iiyama, the iiyama logo, the RSPV logo, VisionMaster, and Pro Lite are trademarks of iiyama North America, Inc. DIAMONDTRON™ NF is a trademark of Mitsubishi Electric Co. All other trademarks are the properties of their respective owners. Estimated Street Price is shown, actual price may vary. Prices do not include shipping, handling and any applicable taxes. Specifications are subject to change without notice. For more information, please write us at 575 Anton Blvd., Suite 590, Costa Mesa, CA 92626. 800/394-4335, 714/437-5111; Fax 714/437-5982



1998
VisionMaster 450



November 1998
VisionMaster 450



January 1999
VisionMaster 450



January 6, 1998
VisionMaster Pro 17



October 6, 1998
VisionMaster 450



August 1998
VisionMaster 450



Feb. Mar. Apr. & May 1999
VisionMaster 450



Perfect Five-Star Rating
January 1998
VisionMaster 450
VisionMaster Pro 500



Contact iiyama.com
for information on our TFT LCD
Pro Lite™ Series.



ISO 9001

Circle 108 on card or go to www.pcworld.com/productinfo

The Best and Lightest: Ultraportable Projectors Lose Weight but Not Features



THE JOB OF making presentations on the road will soon become less of a burden. This year, at least four vendors plan to introduce data projectors that weigh less than 5 pounds, a new low for this product class. We examined the first such products from Compaq and InFocus. Not only did these devices perform as advertised, but they're priced at \$4499 and \$6999, respectively, about the same as their heavier predecessors.

How is this possible? One key is the ongoing development of Digital Light Processing technology, which offers advantages over older, LCD-based models. Specifically, DLP-based units employ lighter and less expensive projection components that produce brighter images.

GOOD IMPRESSIONS

WE EXAMINED preproduction versions of the svelte \$4499 Compaq MP1600 Microportable Projector and the slightly larger \$6999 InFocus LP330. Both offer 1024-by-768 native resolution, so they can display more information than did the 800-by-600 units that dominated the previous generation of portables. Both provide a brightness of at least 600 ANSI lumens—a level that supports presentations in low-light rooms designed to accommodate 30 or fewer people. In addition, both include all of the standard ease-of-use

features: VGA ports for easy hook-up to a notebook and on-screen menus for adjusting the image's brightness, contrast, and other settings.

In informal tests both units did a fine job of projecting PowerPoint presentations,

less height adjustment than horizontal models do. The Compaq has five control buttons for displaying on-screen menus and adjusting brightness, contrast, sharpness, and other visibility factors.

We do have a few quibbles



THE 4.2-POUND COMPAQ MP1600 (front right) delivers bright, high-resolution images. The InFocus LP330 adds more features in a slightly larger package.

digital photos, test patterns, and other images onto a 50-inch portable tabletop screen, as well as onto a highly reflective white wall.

THE LOW-COST OPTION

IF YOU DO traditional, no-frills presentations of text slides, charts, and graphs, and if portability and low price are among your top priorities, the Compaq MP1600 is a solid choice. At 4.2 pounds (or 7 pounds with cables and case in tow), it's the lightest projector we've seen. Because the product stands vertically, like a small tower, its fixed lens sits several inches above the table surface. As a result, it requires

with the product. It lacks a zoom lens, so the only way to adjust screen size is to move the unit back and forth. The projector doesn't provide any video or sound inputs, either. Compaq offers an optional \$249 adapter that lets you project video images (composite and S-Video) from a VCR, a DVD player, or a camcorder.

Still, the Compaq produced bright, sharp images that were easy to view from various seating positions.

PRICEY BUT PACKED

IF YOUR presentations tend toward multimedia extravaganzas or you're willing to pay a premium for convenience,

the \$6999 InFocus LP330 makes a more suitable choice. For ease of use, it has features the Compaq lacks—among them a seven-button wireless remote (with mouse control) that lets you run the show without leaving the lectern. A manual zoom lens makes tweaking the screen size easier. For multimedia, the LP330 includes a built-in speaker and video inputs.

On the downside, this projector weighs 4.8 pounds (with a traveling weight of about 8 pounds), slightly more than the Compaq unit. And because the InFocus lies flat, it requires more height adjustment to center the screen.

SOME EXCEPTIONS

ULTRALIGHT data projectors offering fine image quality are good news for anyone who travels and makes presentations to small audiences. In addition to the products reviewed here, expect to see comparable DLP-based devices from Boxlight and Proxima by early next year. Unfortunately, some people will still have to lug around heavier LCD projectors to take advantage of their bigger lenses and greater projection distances.

For presentations to larger groups, these bulkier LCD units remain the better choice.

—Richard Jantz ■

MP1600 Microportable Projector

List price: \$4499; Compaq; 800/345-1518; www.compaq.com

PRODUCT INFO NO. 750

InFocus LP330

List price: \$6999; InFocus; 800/294-6400; www.infocus.com

PRODUCT INFO NO. 751

Starting at \$99, it's power protection that pays for itself in seconds



APC Back-UPS Pro® 500:
"APC's latest plugs into a USB port,
making it completely painless to protect
your PC from power snafus and electrical spikes."
- PC Computing 4/99



Why 8 million computer users can't be wrong about APC power protection

System crashes, corrupted data, lost Internet connections and keyboard lock-ups (plus outright outages) are symptoms of power irregularities. According to IBM research, such power problems are the largest cause of data loss and occur up to 120 times per month. APC helps eliminate such interruptions and ensures your ability to get the job done.

An APC Uninterruptible Power Supply (UPS) gives you two layers of protection in one unit. Memory cards and hard disks are shielded from damaging surges while back-up battery power enables you to shut down during an emergency without losing any data. APC units are backed by a \$25,000 equipment protection guarantee.[†] Visit your reseller or the listed retailers and try one today!

An APC UPS gives you:

- Enough outlets to protect your computer plus displays, printers, scanners and more
- Emergency battery power for continuous uptime through brief power outages to help save your data
- Telephone/network surge suppression to maintain your online connection

- Auto-shutdown software which saves your files and data, even when you're away from your computer

APC safety and reliability benefits:

- User-replaceable batteries reduce service costs
- Easy overload recovery
- Site Wiring Fault indicator

- Audible and visible alarms alert you to power events as they occur
- \$25,000 equipment protection guarantee (U.S. and Canada only)
[†]See policy for details
- "Best in Class" longest runtime guarantee (5-40 minutes)

You can find APC power protection products at:



APC
Legendary Reliability™



Enter to win the APC Power House Protection Package.

Enter to win APC's legendary power protection for your entire home, home office or small business, a \$3000 value! All entrants will also receive an "Are You at Risk" Kit.

Enter now: Visit <http://promo.apcc.com> Key Code n355z • Call 888-289-APCC x8749 • Fax 401-788-2797

©1999 American Power Conversion. All Trademarks are the property of their owners. BP2A9CF-USC • PowerFax: (800)347-FAXX • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

Circle 45 on card or go to www.pcworld.com/productinfo

Your Right to a

Technology. Dedicated Account Manager. Your

Right to Custom Configuration. Your Right to

Right to Succeed. Your Right to Brand Names. Your Right

Fast Delivery. Your Right to Compare. Your Right to

Technology. Your Right to 24-hour Technical Support. Your

Your Right to Service. Your Right to Custom Configurati

Value. Your Right to Selection. Your Right to Choice. Yo

Simplicity. Your Right to High Performance. Your Right

Decide. Your Right to Custom Configuration. Your

cutting-edge Technology. Your Right to Advise

Right to Decide. Your Right to Value. Your

Service. Your Right to Value. Your

Succeed. Your Right to

Performance. Your



CDW presents a Bill of Rights for the IT manager.

The Founding Fathers were really onto something. Why not guarantee the rights of the individual citizen? So, we at CDW decided to do that very same thing. For starters, we firmly believe in your freedom of selection. That's why we draw from thousands of name brand products to provide you with custom-configured solutions. And let's not forget your right to superior service from a dedicated account manager, not to mention your right to 24-hour technical support and the lowest possible prices on everything from complete systems with pre-installed software to the simplest accessories. We believe this all serves to form a more perfect union between CDW and you. Frankly, anything less would be unconstitutional.

**CDWTM**

*Computing Solutions
Built for BusinessTM*

www.cdw.com

800-306-4239

Circle 41 on card or go to www.pcworld.com/productinfo

Your right to *selection*

Here is just one example of CDW's solution to your desktop publishing needs. The brand name variations on this theme are at your CDW account manager's fingertips—call CDW today!

So you've saved some space—now save your eyes with the expansive 18" of viewing the **ViewSonic E790** 19" monitor offers you. And expanding your screen doesn't have to expand your budget with this value-conscious monitor.

ViewSonic E790 19" monitor

\$399.64

CDW 153355

Adobe Publishing Collection is simply four of the most powerful graphics applications available. Save your pennies and get full version Adobe PageMaker® V6.5 Plus, Photoshop® V5.5, Illustrator® V8.0 and Acrobat® V4.0 right now.

Adobe Publishing Collection

\$997.64

CDW 174167

Are you constantly switching from one application to another? Ramping up on RAM will make your work flow faster—**Simple Technology** has the upgrade custom made for your machine.

Simple Technology

32MB memory upgrade

\$64.82

CDW 115516

High-quality scanning is a must for desktop publishing and the **Epson Expression 800 Artist** delivers all the details that make your images and text leap off the page.

Epson Expression 800 Artist
flatbed scanner

\$799.00

CDW 142589



Monitor sold separately

The **Compaq Deskpro EN Series Small Form Factor** sacrifices neither speed nor power to achieve its slimmer profile. Have you been imagining a 450MHz Intel® Pentium® III processor, 6.4GB hard drive 10/100 Ethernet connection and Microsoft Windows® NT Workstation V4.0 all tucked into the corner of your desk? It's finally a reality.

COMPAQ

**Deskpro EN Small form
factor desktop computer**

\$1195.83

CDW 150320

It is what's outside that really counts. Make sure your project's inner beauty shines through with excellent laser printing from **Hewlett-Packard's LaserJet 2100se printer**.

Hewlett-Packard LaserJet 2100se printer

\$699.00

CDW 144929



COMPAQ

Simple
TECHNOLOGY

TOSHIBA

CISER SYSTEMS

EPSON®

InFocus®

TARGUS

Quantum

HEWLETT
PACKARD
Expanding Possibilities

SYMANTEC®

IBM.

Seagate



TOSHIBA

Don't disrupt your comfort zone. When you are on the road, you depend upon your notebook. The fast 366MHz Intel® Pentium® II model **Toshiba Tecra 8000** is flexible enough to be upgraded and modified as your needs change—eliminating the need to get comfortable with a new machine every time you check into the home office.

Tecra 8000 notebook computer

\$3187.77

CDW 173529

This solution is just right for presenters on the go. Call your CDW account manager today to find the perfect mobile solution for you.

The name says it all. **Symantec's pcAnywhere V9.0** simply provides you with one of the quickest, easiest ways to run your applications from anywhere!

Symantec pcAnywhere V9.0
Host and remote

\$149.76

CDW 168897

Light, light, light! The **InFocus LP435z** personal projector gives you big 1000 ANSI lumens in a small 7.4 pound package.

InFocus LP435z
1024 x 768 XGA projector

\$5379.79

CDW 149830

Boost your capabilities with **Simple Technology's 64MB memory upgrade**. Fully compatible memory upgrades have never been quicker or easier than with Simple Technology.

Simple Technology 64MB
memory upgrade

\$99.03

CDW 126678

Air-cushioned security is just what your notebook, projector, printer or other necessities will have with the sleek **Targus Air Universal Notebook Case**.

Targus Air Universal
Notebook Case

\$99.99

CDW 88264

An excellent choice for your critical operations—such as e-business or large enterprise applications, **IBM Netfinity 5500** is packed with redundant, hot-plug, self-monitoring and alerting components. Its 500MHz Intel® Pentium® III processor and incredible expandability give you the room you need for your expanding business or department.

Netfinity 5500 tower server

\$5179.81

CDW 150911

Need a stable, reliable solution for your network? These products form just one of the options your CDW account manager has for you—don't hesitate to call CDW!

IBM



You need high-performance backup for your servers and networks—trust **TapeStor DAT** storage technology from **Seagate Storage**.

Seagate Storage TapeStor DAT
8GB external DDS-2

\$909.98

CDW 115816

Cisco Catalyst 1924 Switch has the big three: end-to-end network integration, proven performance under critical conditions and an exceptionally affordable price.

Cisco Catalyst 1924 Switch
24 10BASE-T ports, 2 100BASE-TX ports

\$1249.28

CDW 98418

The **Quantum Atlas IV hard drive** to the rescue! The reliability and security of the Quantum name will give your server all that it needs. No more 'out of space' notices for you.

Quantum Atlas IV 36.4GB
Wide-Ultra SCSI hard drive

\$1308.85

CDW 163686

All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manufacturers, including but not limited to Y2K compliance. Accordingly, CDW makes no representation or warranty with respect to the Y2K compliance of products sold.

56K modems are capable of 56Kbps downloads, however, current regulations limit download speed to 53Kbps. Internet connectivity requires access services from an Internet access provider. Contact your local access provider for rates, terms and conditions.

©1999 CDW® Computer Centers, Inc.
200 N. Milwaukee Avenue, Vernon Hills, IL 60061 PCW4985D 10/99



Computing Solutions
Built for Business™

www.cdw.com
800-306-4239

Circle 46 on card or go to www.pcworld.com/productinfo

Your right to *value*



**HEWLETT
PACKARD**

Expanding Possibilities

A home PC you can feel good about

HP Pavilion mini-tower PCs

HP Pavilion PCs help you accomplish your goals, explore your creative side and discover the new frontiers of the Internet—liberating you to achieve your personal best. Your choice of the Intel® Celeron™, Pentium® II and Pentium III processors ensures that you're running on all cylinders.

Starting at

\$599.00

CDW 177051

HP DeskJet 882C

USB color inkjet printer

*Brilliant photo quality color
on a budget*

\$299.00

CDW 137628



HP Vectra shown; monitor sold separately

Highly manageable corporate PCs

HP Vectra desktop PCs

If you are looking for a top-performing corporate PC that's easy to manage, the HP Vectra PC is it. And naturally, these top performers are equipped with the latest technology, such as Intel® processors and 3Com® network interface cards, and they are Windows 2000 ready!

Starting at

\$759.95

CDW 153022

Affordable business computing

HP Brio mini-tower PCs

HP Brio PCs are engineered to help you stay one step ahead. Choose from:

- Intel processors, including Celeron™ for everyday computing or powerful Pentium® II and Pentium III processors
- Either Windows 98 or NT V4.0 Microsoft operating systems
- High-performance 2D/3D graphics
- Fast Ultra ATA hard drives for optimal storage

Starting at

\$699.00

CDW 176565

HP LaserJet 2100se

*Perfect laser printing for individuals
and small workgroups*

\$699.00

CDW 144929

HP LaserJet 4050N printer

High-quality workgroup printing

\$1397.89

CDW 159495





**Your solution for
smart buying**

Ranked No. 1 by PC Week*

- ✓ Priority access to your CDW account manager
- ✓ Order at your prenegotiated volume discount
- ✓ Enhanced Order Status feature
- ✓ Download your Purchase History anytime

...and more!

Get connected today. For more details, call us to request a free interactive CD-ROM or e-mail us at cdwatwork@cdw.com.

*No. 1 on PC Week's list of top e-commerce sites for IT buyers, PC Week 5/24/99

TOSHIBA



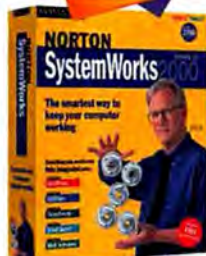
Tecra 8000 Notebook computer

- 366MHz Intel® Pentium® II processor
- 64MB RAM
- 6.4GB hard drive
- 24X Max CD-ROM
- 56Kbps modem
- Windows® 98
- 14.1" active-matrix display

\$2799.89

CDW 172929

**\$15
rebate***



SYMANTEC®

Norton SystemWorks 2000 For Windows 95 and 98

Norton SystemWorks™ 2000 includes: Norton Utilities™, Norton AntiVirus™, Norton CleanSweep™, Norton CrashGuard™, and a free Bonus Pack of handy utilities. Also included is access to Norton.com to help you keep your system up-to-date.

\$67.99

CDW 176283

*\$15 mail-in manufacturer rebate for any users of Nuts & Bolts, Virus Scan, First Aid and Uninstaller (while supplies last)

Simple TECHNOLOGY

PhotoReader for CompactFlash USB

For PCs and Macs

- 1.5Mbps maximum transfer rate
- USB interface
- External AC adapter
- Dimensions: 69 x 94 x 23mm
- Supports Mac OS and Windows® 98

\$93.54

CDW 140297



All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manufacturers, including but not limited to Y2K compliance. Accordingly, CDW makes no representation or warranty with respect to the Y2K compliance of products sold.

56K modems are capable of 56Kbps downloads, however, current regulations limit download speed to 53Kbps. Internet connectivity requires access services from an Internet access provider. Contact your local access provider for rates, terms and conditions.

©1999 CDW® Computer Centers, Inc.
200 N. Milwaukee Avenue, Vernon Hills, IL 60061 PCW4985F 10/99



Monitor sold separately



IBM PC 300GL Small Business Series

- 500MHz Intel® Pentium® III processor
- 512KB Level 2 cache
- 100MHz Front Side Bus (FSB)
- 128MB SyncDRAM
- 20.4GB hard drive
- 40X CD-ROM drive
- 10/100Mbps Ethernet port
- Microsoft Office Small Business Edition

\$1595.85

CDW 151015

Microsoft®

**Save up
to \$100^{1,2}**



Office 2000 Premium

- Word 2000
- Excel 2000
- PowerPoint 2000
- Access 2000
- FrontPage 2000
- Outlook 2000 and more

Upgrade

\$379.90^{1,2}

CDW 158720

Full version

\$697.19

CDW 158721

1 After \$50 mail-in manufacturer upgrade rebate with purchase of Microsoft Office 2000 (offer ends 12/31/01) 2 Get an additional \$50 off your purchase immediately when you purchase any Microsoft Office 2000 Upgrade product with your American Express Card; certain restrictions apply; call your CDW account manager for details (while supplies last)



**Computing Solutions
Built for Business™**

**www.cdw.com
800-306-4239**

Circle 44 on card or go to www.pcworld.com/productinfo

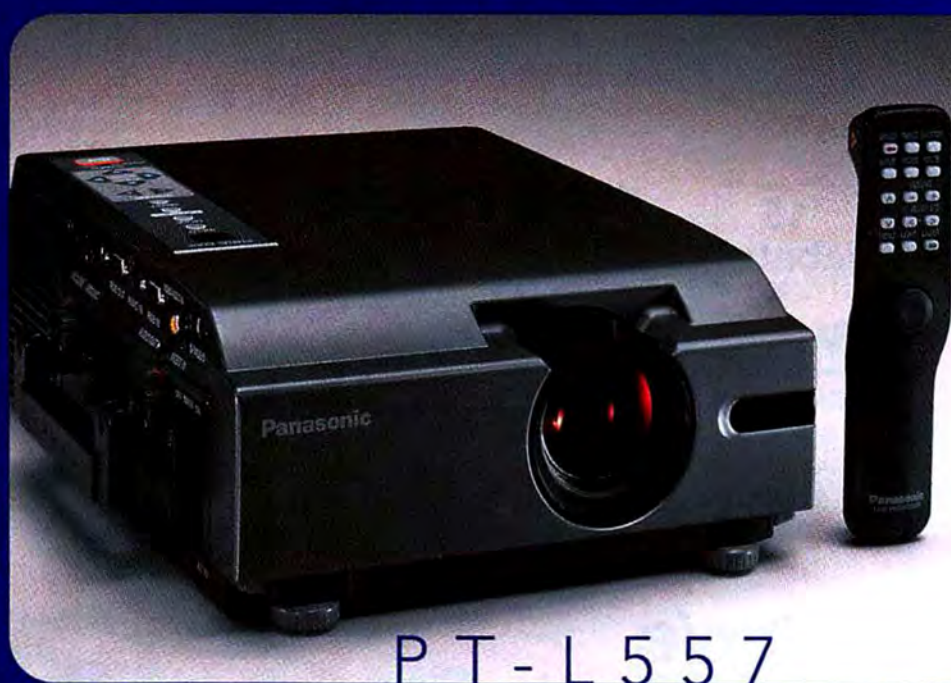
ANOTHER

SMART PC CARD CAPABILITY

95% CENTER-TO-CORNER UNIFORMITY

Brighter IDEA

THE LIGHTEST, BRIGHTEST, SMALLEST PROJECTOR IN ITS CLASS.



Introducing the PT-L557 SVGA projector: no other projector in its class delivers 1500 ANSI

lumens of brightness in such a compact, lightweight projector. The PT-L557 (and its companion, the PT-L757 XGA Projector) provide stunning image quality and both feature user-friendly PC card support for making convenient PC-less presentations.

Powerful Panasonic benefits including one-touch auto setup; unattended continuous, self running play; a wireless remote control with a built-in laser pointer; front or rear projection on screens up to 300", and both projectors are 16:9 NTSC capable. Panasonic's new PT-L557 and PT-L757 projectors set new standards in what you should expect from presentation equipment.

CALL PANASONIC NOW AT 1-800-528-8601 (PRODUCT CODE 50) FOR MORE INFORMATION.

WHATEVER YOUR
PRESENTATION NEEDS,
PANASONIC HAS
A BRIGHTER IDEA.

Panasonic

WWW.PANASONIC.COM/PRESENTATIONS

STAND AND DELIVER

the presentation series, part 4

Pretend Your Audience Is Naked

THERE ARE WORSE things than death, according to the Book of Lists, such as the debilitating stage fright suffered by nearly 50% of the general population who say they'd rather die than speak in front of a large audience.

Given that choice, however, they'd probably opt to present than perish. Fortunately, by heeding the advice of experts, everyone can overcome or help manage stage fright.

First, concentrate on the financial, professional, and social benefits that you receive from public speaking engagements. Nancy Wesson, Ph.D., a Los Altos, Calif.-based psychologist and expert on overcoming shyness, sees a definite correlation between your income and your visibility. "The more visible you are, by accepting speaking invitations and speaking up in company meetings, the more likely you will receive raises and promotions," Wesson says.

Wesson adds that many people worsen the

**Tips and techniques
for staying calm and
collected when it's your
turn to present at the
front of the room**

DAVID BRENNAN

Nicholas Boothman,
seminar leader and author.

IMATION SUPERDISK

situation by making irrational assumptions. For example, they assume they will fail, give a poor performance, or embarrass themselves by forgetting their speech. "Your negative thoughts can trigger your own anxiety," she warns. In turn, these self-defeating thoughts cause them to lose confidence in themselves. She cautions speakers not to focus on pleasing others, because the thought of those other people sitting in judgment of you will likely trigger these fears. If that happens, her advice is straightforward:

"Concentrate on changing the focus of your mind from pleasing people to making your point."

For that, you need to increase your self-confidence. Begin by preparing yourself by thoroughly researching your topic so that you are fully knowledgeable. Next, practice your delivery. In fact, memorize the first two minutes of your speech or presentation since those are the most tense moments.

Part of your preparation should include speaking to members of the audience before your presentation. Some professionals recommend that you arrive early and greet each attendee as they enter the room. If it's a large audience, just a nod and a few

words will suffice. By doing this, you can gradually get used to the audience so you are not overwhelmed by seeing them all at once. In addition, you may gain some insight into the audience's expectations of you.

This technique also helps you to get in synch with your audience. Your goal is to persuade them to believe that you are just like them, and you have a genuine understanding of their values, culture, and principles. After all, people like people who are like themselves. That principle is the foundation of Neurolinguistics Programming (NLP).



Captivating Your Audience

Surveys reveal that audiences want a presenter to be part party animal, part evangelist, and part performer. Here are the top five attributes that audiences want to see:

- ▶ **CREDIBILITY:** Tell the truth. Mean and believe what you say.
- ▶ **PASSION:** Deliver your words and gestures with genuine feelings, dynamically and with animation.
- ▶ **CONFIDENCE:** Know your product, service, or agenda thoroughly, and understand your audience's values and priorities.
- ▶ **ENTHUSIASM:** Your actions and words should demonstrate that you appreciate your audience's time and that you are happy to be there.
- ▶ **PERSUASIVENESS:** Be able to inspire and convince your listeners.

Good Vibes

Nicholas Boothman, a Toronto-based NLP seminar leader and author of an easy-reading guidebook, "How to Make People Like You in 30 Seconds or Less" (\$11.95, Somerville House Publishing), says that 55% of effective communication consists of visual cues (body language, facial expressions and hand gestures), 38% is auditory (tonality, articulation), and only 7% is content (what you actually say or show).

Boothman champions the "Three C's" of public speaking: congruence, confidence, and competence. One technique of projecting confidence that he recommends is to "Stand like you are confident and in full control of the podium, the room, and the discussion, and you will be."

Pay attention to your body's posture, he advises; you want it to appear open. A closed stance denotes shyness, a trait an audience will detect and one that will make them uncomfortable, too. An open stance projects confidence. To adopt an open posture, face the audience, avoid crossing your arms in front of

continued on page 12

INFOCUS LP330



PROXIMA LX1



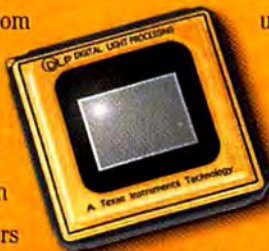
"There are just two types of speakers, the ones that are nervous and the ones that are lying." - Mark Twain

SEE THE DIGITAL DIFFERENCE.



100% digital display technology delivers lighter, brighter ultraportable projectors.

For dramatic, high-quality images look for a projector featuring Digital Light Processing™ (DLP™) technology from Texas Instruments. DLP technology is the revolutionary all-digital projection system that has enabled a new generation of market-leading ultraportables. Unlike LCD systems that contain heavy, complicated optics, DLP technology delivers incredible images through a more compact optical system for smaller, lighter projectors.



With its 100% digital design, DLP technology produces more usable light, achieving higher levels of brightness than other projection systems. And DLP technology's unique digital light displays 16.7 million digitally correct colors for brilliant, breathtaking images that will never degrade over time.

See why over 165,000 projector owners depend on the digital difference DLP technology brings. Call toll-free for a list of leading manufacturers, or visit us on the Web.

Texas Instruments Incorporated is traded publicly on the NYSE® under the symbol TXN.
™ Digital Light Processing and DLP are trademarks of Texas Instruments Incorporated.
5229-01 PCW
© 1999 TI

1-888-DLP-BY-TI, ext. 2931
www.ti.com/dlp/ultraportable

CREATING DRAMATIC VISUAL EXPERIENCES THROUGH DIGITAL SOLUTIONS.

 **TEXAS
INSTRUMENTS**

The first annual Presentation Playoffs, held at Infocomm International 99, honored three winners for creative use of technology and business knowledge

PRESENTATIONS OF DISTINCTION HONORED

IN WHAT MAY BECOME the Oscars ceremony for multimedia, the International Communications Industries Association (ICIA) named three winners at the first annual Presentation Playoffs, held as part of the week-long Infocomm International 99 show at the Orange County Convention Center in Orlando, Fla., in June. The Presentation Playoffs recognized each of the winners for their singular ability to fuse creativity, technology, and business into a persuasive presentation.

The Playoff winners were: Bobbie Tracy and Bill Krings of The Boeing Company, based in St. Louis, for a presentation in honor of Israel's 50th Anniversary entitled, "The Future of Air Power"; Kirk Kelly and Chris Bornhoft of the University of Idaho campus in Moscow, Idaho, for the "Introduction to the University of Idaho" presentation; and Sandy Proska of Sandy Proska Designs, a freelance design firm in Rockport, Mass., for a sales and marketing presentation created for Polaroid Corp.

The Playoffs were sponsored by Texas Instruments, maker of Digital Light Processing™ (DLP™) technology for projectors. TI's DLP technology uses an array of microscopic mirrors to reflect light which gives its projector's images greater three-dimensional depth and sharper details with less visual noise.

"DLP offers significant advantages over current LCD technologies," says Lars Yoder, product planning and strategy manager of business displays at Texas Instruments Inc. in Plano, Texas.

"It delivers an ultra-bright, high-quality image, in both desktop and ultra-portable projectors. That helps make you and your presentations more effective in selling your products and services, and in communicating ideas." The heightened clarity of DLP-generated images makes them easier to view from the side of the room, with less distortion, even in ambient light.

Effectively using and maximizing DLP technology are just a few of the many tracks and conferences that were offered at Infocomm International 99. In addition to the Presentation Playoffs, the conference and exhibition bring together some of the world's leading facilitators. It offers dozens of seminars and workshops showcasing the latest techniques, plus vendor exhibits designed to help audio/visual professionals con-

tinue advancing their professional growth.

The Playoffs themselves attracted more than 100 entries. Each contestant received 15 minutes for their presentation. Entries were evaluated by a five-judge panel for:

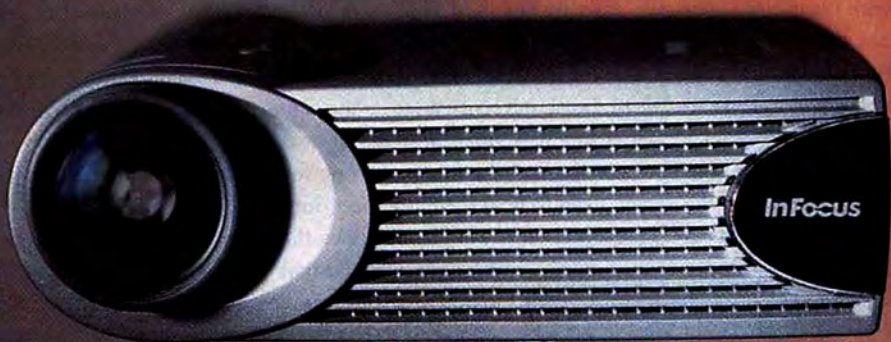
► **Creativity**—Evaluates the use of audio and video and design elements.



Boeing's presentation on air power for Israel's 50th Anniversary stressed graphic simplicity.

► **Production Skills**—How well does the presentation get its point across? This category evaluates the design-

SUBSTANCE: 4.8 Pounds. STYLE: Tons.



A notebook projector that's light on weight,
heavy on style. The new InFocus® LP™330 "Dragonfly" with
XGA resolution projects a truly stunning image,
even before you turn it on. From the number-one name
in projectors. It's your image. Project yourself.™

www.infocus.com/pwd 1-800-294-6400.



DLP
A TONIC MOVEMENTS TECHNOLOGY

© 1999 In Focus Systems, Inc.

InFocus®
Project yourself.™

Circle 98 on card or go to www.pcworld.com/productinfo

er's choice of colors, fonts, artwork, and multimedia elements.

- **Message Clarity**—Rates the speaker's ability to communicate the underlying message to the audience and to complement the presentation.

Know It All

Purists will say that presentations are subordinate to the presenter, that the best presentations will never upstage the presenter. But defining the dynamic relationship between the two is easier said than done. Boeing's Tracy, group manager of Multimedia Design, says she avoids the problem by getting to know the customer's needs.

"A lot of the responsibility to keep the audience captivated rests with the speaker. We tailor our presentations to

says Bornhoft, whose winning presentation will help recruit new students for the University of Idaho starting this month.

Many presenters see themselves fulfilling the role of an educator because, like educators, they convey information. However, unlike lecturing in a classic academic environment, most presenters seek to communicate the benefits of their product or service in a corporate environment where expectations are high and patience is low.

So whether your audience attends your presentation to learn more about a Midwest university, discover the benefits of a new video product, or hear predictions on the future of air power, you need to hold their attention. Your presentations have to rise above the background noise that tends to distract most people.

Winning Techniques

Despite the variety of themes at the Playoffs, the winning designers shared two design goals: simplicity and minimalism.

"We strive for simplicity in the graphics we use and try to avoid a deluge of information on the slide," says

"We don't normally work that way," admits Tracy. "Ordinarily, we want enough time to make sure that the customer is comfortable with the material. One way we achieve that is to avoid the overuse of multimedia or special effects. Every element has to help tell the story," she says.

The strategy worked. Despite the limited time for review and rehearsals, Sears delivered the presentation without a hitch.

As members of an in-house design team, Krings and Tracy can optimize the likelihood that their audience and topics will have a common theme—aircraft—and they can reasonably assume that the presenter has a degree of familiarity with the topic.

In contrast, designer Proska says her company cannot always count on that good fortune and consequently must factor in all the variables.

"I use different techniques depending on the location," she says. "When I design a presentation for a trade show booth, where there's lots to look at and lots to distract the audience, I might make every slide different and use flashy colors, audio, and graphics. If I'm designing for an audience of corporate investors, I'd use a much more conservative design."

The tough part, says Proska, is knowing when to stop. One mark of an amateur, agree Tracy, Kling, and Proska, is the overuse of multimedia.

"People think to themselves, 'Oh, I can do that,'" says Proska. "So they pick one of the standard PowerPoint templates and add too many colors, fonts, and audio."

The University of Idaho's Bornhoft and Kelly, associate director for Information Technology Services, staked out the high ground to depict the university as a center of culture and education.

"In a successful presentation the clarity of the message must come across. We wanted to make sure we



The University of Idaho used some potato humor to spice up a presentation about the institution.

the customers and give them just the amount of activity the speaker wants to see on the screen." Generally, says Tracy, the more knowledgeable the speakers are, the less they want from the presentation.

Proska, too, designs her work to complement the presenter. "I see the presentation as a tool to make a point. I let the presenters add to the content as they see fit." Bornhoft, a staff member at the University of Idaho's Center for Teaching Innovation, agrees. "We definitely build in the need for a presenter to explain some of the slides,"

Boeing's Krings, a graphics designer. "Our role is to support the speakers, to give them something to talk about. If we make the screen too complex, the audience will concentrate on trying to understand the screen instead of listening to the speaker."

For this presentation, the need to "keep it simple" had increased urgency. The hectic schedule of the presenter, Mike Sears, president of Boeing's Military, Aircraft, and Missile Systems Group, prevented him from seeing the presentation until the day before he delivered it.

**With a SuperDisk™ Drive
built into your notebook,
you get more room than Zip.[®]
And floppies fly free.**

With a slim SuperDisk Drive built into your notebook, standard floppies and 120MB SuperDisk Diskettes share the same internal drive. So you can leave the add-on hardware behind and really travel light. Check out SuperDisk in Acer, Compaq, Gateway, Hewlett-Packard, IBM, NEC, Toshiba and other great notebooks. If you spend a lot of time on the road, it's the only way to fly. Save a little. Save a lot. Save the world.



Get a
SuperDisk
Drive
built in!



SUPER DISK™
120MB

www.superdisk.com
1.888.222.2294 ext.120



SuperDisk, the SuperDisk logo, the SuperDisk and Floppy Disk characters, compatibility symbol, Imation and the Imation logo are trademarks of Imation Corp. All other trademarks are properties of their respective companies. This advertisement does not contain and in no way implies an offer to give away free diskettes. © Imation 1998

 **IMATION**

Circle 119 on card or go to www.pcworld.com/infonet

showed who and where we are. We did that by collecting information from numerous groups at the University," says Bornhoft. Humor helped increase the impact of their presentation, too. In one scene they show a truck carrying a single huge Idaho potato.

Kelly and Bornhoft used several production techniques that helped them walk off with the coveted award.

"We made the important elements lighter than the background to make them stand out, but without making them too obvious," says Bornhoft. "In addition, we faded the edges of our graphics to give them depth and to make them look like they are a part of the background."

The two estimate they worked 65 hours to create the 35 slides in their presentation and to incorporate AVI (Audio Video Interleaved) segments of previously recorded video footage.

Things That Go "Bang" in the Dark

What are the worst fears that plague even award winning designers?

In the case of Kelly and Bornhoft, it's technology failures. "After all the research we did and the feedback we got from our initial screening, we had great confidence in our content. Our biggest worry was the technology, that we'd get to Orlando and something wouldn't

work right. We insisted on bringing our own equipment."

Tracy and Krings at Boeing are not willing to trust just one computer. They employ a belt-and-suspenders strategy. "We're confident enough in our content that we will design a presentation that the customer will like. Our biggest fear is the delivery," says Tracy.

"We send backup laptops, and backup slide projectors. One way or the other, we will make sure that our customers will have an image on the screen," she asserts. Tracy's group checks and reconfigures every laptop after each use to insure that they are operational and ready for the next presentation.

Proska, on the other hands, says she worries, perhaps excessively, about originality and content quality. "I take each presentation seriously." She does extensive research, saying in-depth analysis helps insure that clients like the finished product. "The more questions I ask about what the client wants, then the more ideas I'll have about what colors and photos to use to make

Polaroid PolaView 315

High Resolution LCD Projector



Sandy Proska's extensive research and design helped Polaroid's marketing and sales team.

it appeal to the intended audience." Proska says it's the conceptualization that's time-consuming. Once the ideas come to her, she spends an average of 15 minutes to one-half hour actually creating the slides.

Lowered Lights, Heightened Expectations

In addition to the cash awards of \$2,500, each winner received DLP-enabled projectors from InFocus Systems Inc., Wilsonville, Ore., and San Diego-based Proxima, presentation software packages, and an expense paid trip to Orlando.

"We learned a lot from these wonderful presenters and their presentations. It is exciting to see how the consumers of projectors and presentation products are using the technology to communicate ideas and to win new work for their companies," says Sherel Horsley, vice president for Texas Instruments.

Poska summarized the camaraderie of attendees: "The ICIA and Texas Instruments did a great job of making everyone who participated feel recognized and special. It was really nice to be a part of it."

Presenters interested in participating in next year's Presentation Playoffs should call the ICIA at 800-659-7469, x323, for more information. *

Did You Know?

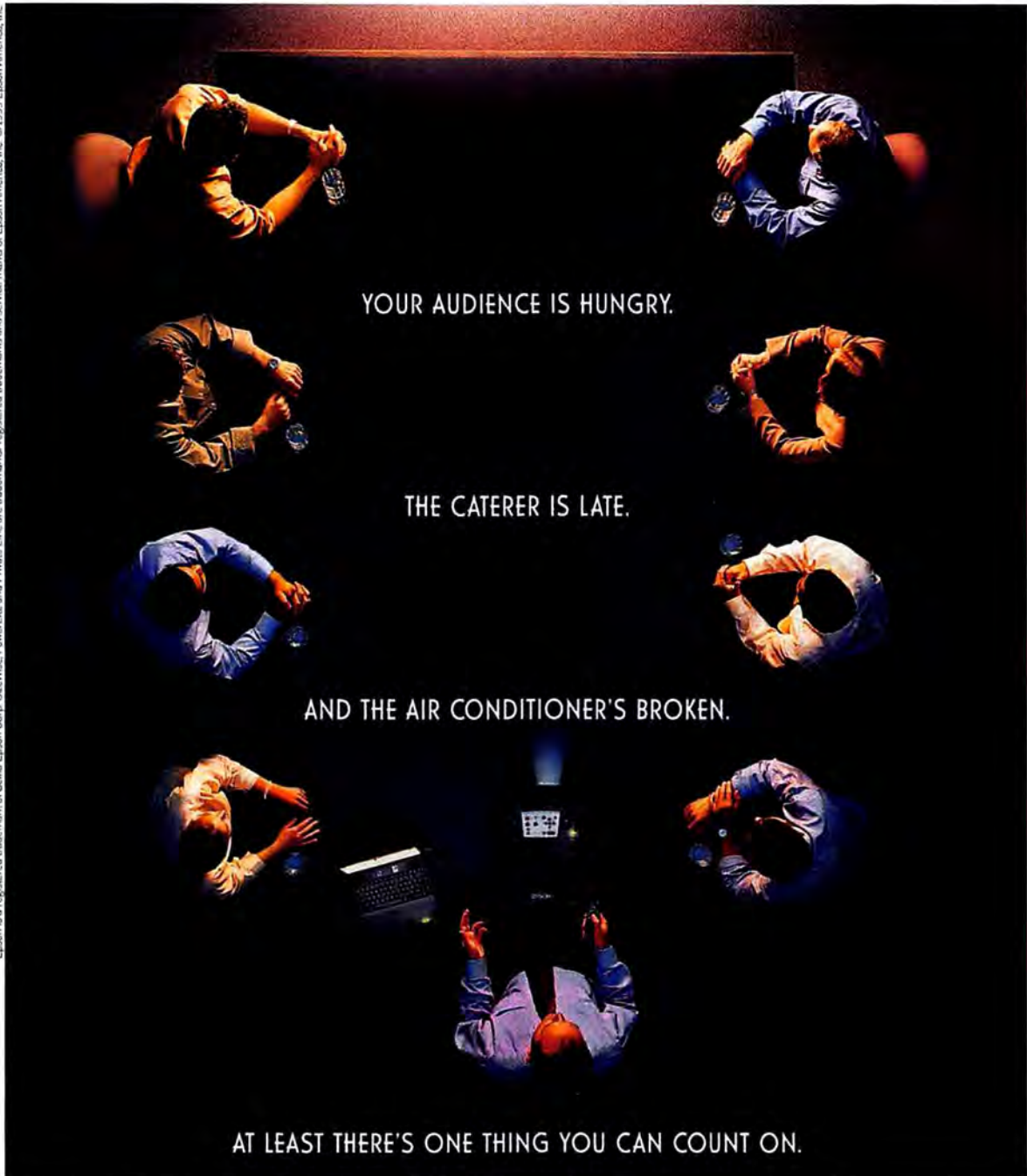
- ▶ A survey by *Presentations Magazine* revealed that 90% of its readers use PowerPoint (and computers) for their presentations. Printed handouts were used by 77%, and 72% used just transparencies.
- ▶ Researchers at Stanford University predict that the sale of projection equipment will exceed \$11.4 billion by 2004.
- ▶ In a survey by 3M of professional facilitators, between one-third to one-half of the 3,400 respondents say the things they disliked most about meetings include: not reaching decisions, people attending who are not adequately prepared, a meeting leader who does not stick to the agenda, and meetings that do not start or end on time.
- ▶ In the same survey, more than one-half of the respondents say they make one or two presentations per month. Among the respondents, 68% worked for the private sector, 23% in education, and 9% percent in government.

YOU'VE GOT TO SEE IT IN

EPSON

COLOR.

Epson is a registered trademark of Seiko Epson Corp. SizeWise, PowerLite and Private Line are trademarks/registered trademarks and service marks of Epson America, Inc. ©1999 Epson America, Inc.



YOUR AUDIENCE IS HUNGRY.

THE CATERER IS LATE.

AND THE AIR CONDITIONER'S BROKEN.

AT LEAST THERE'S ONE THING YOU CAN COUNT ON.



EPSON POWERLITE PORTABLE LCD PROJECTORS. THE ONES THAT NEVER LET YOU DOWN.

Confidence is one thing. Certainty another. Our projectors give you both. How? First, up to 2000 ANSI lumens guarantee dazzling brightness in any room—even when the lights are on. Next, our exclusive SizeWise™ technology gives you perfect compatibility with computer resolutions up to 1600 x 1200. And with three LCDs instead of a single DLP, you can always count on unsurpassed image quality. There's even Private Line™ phone support, where you can easily reach a service expert in under a minute. All of which means when you buy an Epson projector, you're not just getting the best features and benefits, you're getting something more—peace of mind.

To receive a free video from Epson®, the world leader in high-performance projectors, call 1-800-442-1977 (Oper. 3102) or visit www.epson.com/mul_proj. For presentation tips, tools and techniques visit www.presentersonline.com.

IN TECHNOLOGY WE TRUST

MOST OF THE EMPHASIS on developing confidence centers on honing your own strengths. Still, there's another factor that you need to consider—the reliability and suitability of your technology.

Fortunately, the right mix of products at your side can help increase your self-confidence. For example, Torrance, Calif.-based Epson America's PowerLite 5550C utilizes a proprietary three-LCD projection

system to achieve the highest degree of brightness distribution, color saturation, and color accuracy. In addition, this powerful new projector features Epson's SizeWise, a resizing technology that enables the 5550C to accept virtually every notebook resolution and help eliminate set-up hassles.

New high-intensity image projection techniques, such as Texas Instruments' pioneering Digital Light Processing™ (DLP™) technology, projects sharp images particularly well suited for both static and dynamic subjects. Projectors that use DLP technology empower you to update your presentation in real time and to demonstrate changes dynamically.

"You can't do that with a slide show or an overhead," says Lars Yoder, product planning and strategy manager of

business displays at Texas Instruments Inc. in Plano, Texas. "DLP delivers an ultra-bright, high-quality image that helps make your presentations more effective."

The LP330 Dragonfly projector from InFocus, Wilsonville, Ore., is an example of DLP technology at its finest. Weighing in at a lean 4.8 pounds, the Dragonfly includes a zoom lens and the unit's 400:1 contrast ratio and 1024 x 768 resolution, enabling it to project flicker-free images that pierce ambient light. Other professional features include Executive Plus Remote that enables you to control your presentation from anywhere in the room.

The list of advanced features available in today's newest multimedia projectors can effortlessly display presentations ranging from static to slick. To safely store those robust presentations, you need the SuperDisk drive from Imation Corp., Oakdale, Minn. It stores 120 Mbytes, 80 times the data capacity of an anemic 1.44 Mbyte diskette. What's more, the high-capacity removable media drives do double duty: They can read from and write to 3.5-inch diskettes. SuperDisk drives are available in external parallel port and USB models for PCs and Apple Macs as well as internal models.

SuperDisk's gargantuan storage appetite makes good sense when traveling with your laptop. However, for those times when you want to lighten your load, projectors such as Cypress, Calif.-based Mitsubishi's S120 PC Card Input Slot enable you to eliminate the laptop altogether. Simply upload your presentation onto one or more PCMCIA Cards and you can carry your presentation and projector in one hand. An automatic and continuous PC Card playback system, combined with the S120's built-in audio and 800 x 600 resolution, make this an ideal solution for self-running programs at conferences.

Other vendors ready with products that can produce peace of mind include San Diego-based Proxima's UltraLight LX1. Despite weighing in at just 8.6 pounds, and measuring a scant 3-inches tall, its 9-inch LCD panel projects fully saturated colors at resolutions up to 1024 x 768. Additional advanced features include inputs for computer, VCR, and DVD signals, and support for an image size up to 20 feet high.

The bottom line is that today's portable projectors and storage systems will enable you to convey your ideas, with confidence, in yourself and in your equipment. *

EPSON POWERLITE 5550C



Mitsubishi

X300

Who Says You Can't Have Everything?

Super Bright Micro-Lens **2000** ANSI LUMENS
Movie Quality Video



HDTV Ready **True XGA**
SXGA maximum
Picture-In-Picture
Optional Lens

Performance And Versatility At An Affordable Price.

Mitsubishi's X300 LCD projector is designed to provide maximum presentation impact for virtually any size room, audience, or lighting condition. It's the perfect combination of advanced features, brightness and versatility. It's all here, *everything* you need to make an impact at your next presentation. And at just 13 pounds, the X300 is as easy to carry as it is to set-up and use. Plug it in and start the show. It's that simple. So now you can focus your undivided attention on the audience, not the projector. For added peace of mind, Mitsubishi's X300 is also backed by a three-year warranty and Emergency Roadside Assistance program. Let your talent really shine through with the fully-featured X300 LCD projector. Call Mitsubishi today for a free demo, more information, or the name of the dealer nearest you.

 **MITSUBISHI**
PRESENTATION PRODUCTS
Innovation On Display_{sm}

USA: 800-843-2515 • Canada: 800-387-9630 • QWIKFAX: 800-937-2094 • www.mitsubishi-display.com/pb/pwd/x300

©1999 Mitsubishi Electronics America, Inc.

Circle 144 on card or go to www.pcworld.com/productinfo

MITSUBISHI S120



►continued from page 2
you, and "Aim your heart at the people you're talking to," he says.

You must also possess congruence, and you achieve that by insuring that your voice and body language say the same thing. The third "C," competence, reinforces Dr. Wesson's assertion that you must thoroughly understand your topic.

Positive Stress

Experts advise against totally quelling all feelings of nervousness. Some apprehension is natural, and all speakers feel it. As Mark Twain observed, "There are just two types of speakers, the ones that are nervous and the ones that are lying."

You should understand that the apprehension asso-



PANASONIC'S PT-L757U portable, 14-lb. XGA LCD projector offers 1400 ANSI lumens, supports native XGA resolution, and features a high contrast ratio of more than 250:1. For PC-less presentations, the projector offers a smart PCMCIA Card slot with slide management software.

ciated with public speaking is a natural reaction, a primordial survival mechanism to what you see as a threatening situation. You'd likely have the same reaction, a wholesale injection of adrenaline and cortisol to, say, a fin in the water swimming towards you.

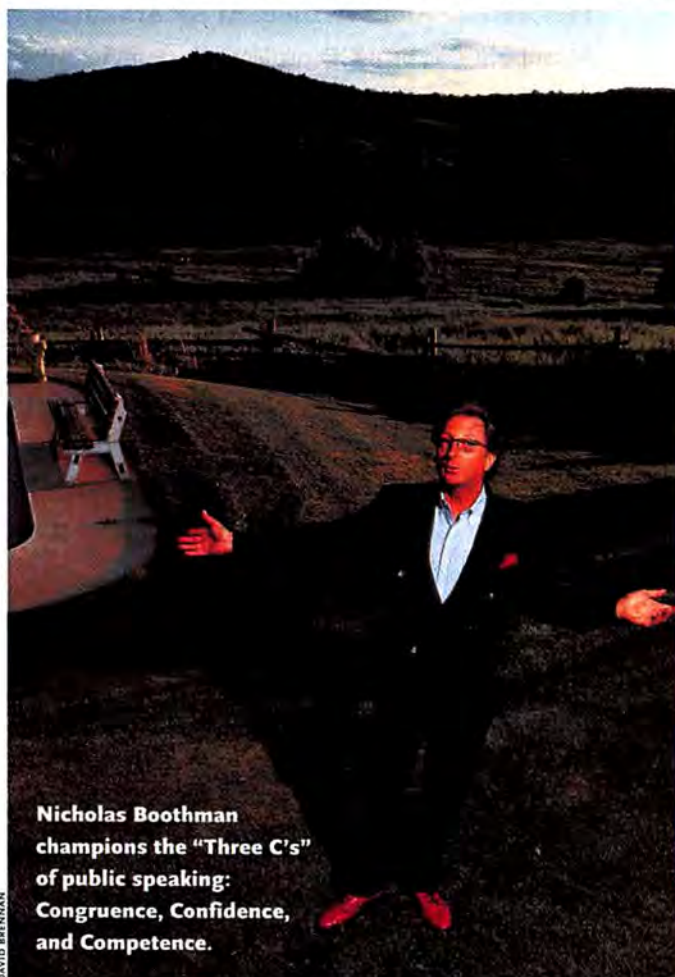
We're All in This Together

Boothman also offers practical advice to both novices and seasoned experts. He suggests that you begin with a statement that anyone or everyone can answer: "How many of you have more work than you have time to do?" Make sure you raise your own hand, too. That shared experience helps to demonstrate that you are "like them" and helps you to establish an instant rapport.

There are many tricks, techniques, and methods you can use to get over your stage fright. Some professionals advise that you imagine that everyone in the audience is naked, although some people might find that too distracting, perhaps even frightening considering some of the audiences I've spoken to. Instead, I recommend novices and tomorrow's experts remember that when they successfully overcome their fears is when they will begin to achieve their full potential.*

Sponsored by:

EPSON
www.epson.com
IMATION
www.imation.com
INFOCUS
www.infocus.com
MITSUBISHI
www.mitsubishi.com
PANASONIC
www.panasonic.com
PROXIMA
www.proxima.com
TEXAS
INSTRUMENTS
www.ti.com



Nicholas Boothman champions the "Three C's" of public speaking: Congruence, Confidence, and Competence.

DAVID BRENNAN

Ten years of worry-free presentations.

DISTINCT DETAILS

XGA resolution provides the image detail and compatibility you need

BRILLIANT

IMAGES

800 ANSI lumens make it easy to see the bright, vivid colors

LIGHTWEIGHT CHAMPION

weighs just 8.1 pounds for go-anywhere presentations



CLOSE UP VIEWS

digital zoom lets you magnify image details

LOW COST OF OWNERSHIP

4,000-hour lamp saves costs and hassles

Proxima's UltraLight LX1. An enduring value.

The Proxima UltraLight™ LX1 in a nutshell: low price, high resolution, low maintenance, and incredibly high value. With an industry-leading 4,000-hour lamp life, you're set for about ten years of presentations without once having to stop and change the lamp. And that long-lasting lamp puts out 800 ANSI lumens of brightness—powerful enough to present with the room lights on. XGA (1024 x 768) resolution, with Proxima's Fit-to-View® digital scaling,



means sharp images from any computer. The Proxima UltraLight LX1 even has a zoom lens for flexibility in set-up, and a digital zoom for close-up views of the smallest details. It's hard to believe this sleek, 8.1-pound package contains so much. The LX1 is just one lightweight star from Proxima's complete line of UltraLight projectors, including the award-winning LS1 and the value-priced SV1. So pack a Proxima UltraLight for your next presentation. And pack your worries away.

Call today for a free demo!

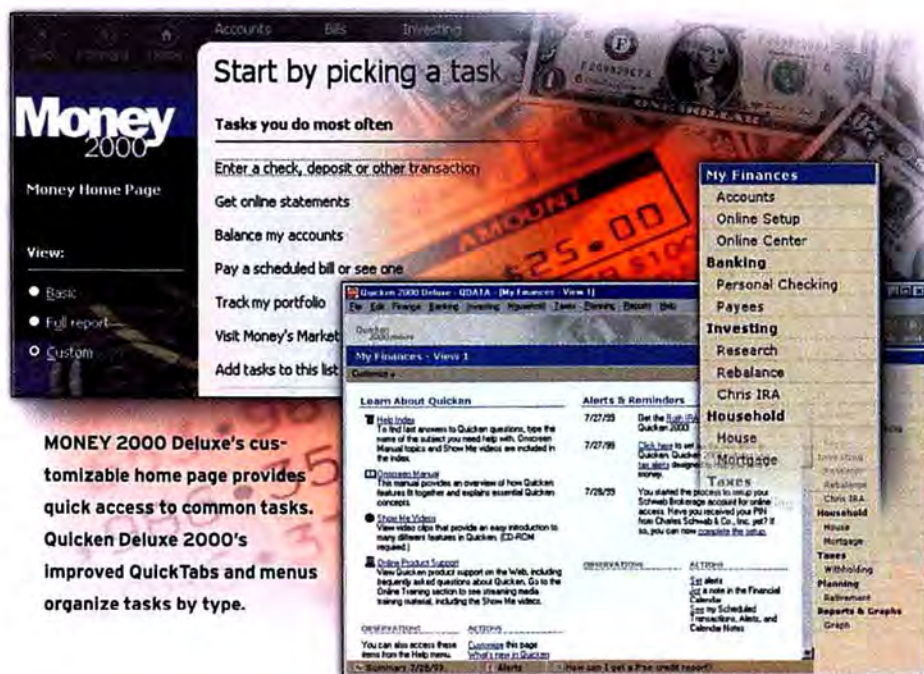
800-447-7692 ext. 312

www.proxima.com/pcw

Circle 178 on card or go to www.pcworld.com/productinfo

PROXIMA®
MULTIMEDIA PROJECTORS

NEW PRODUCTS



MONEY 2000 Deluxe's customizable home page provides quick access to common tasks. Quicken Deluxe 2000's improved QuickTabs and menus organize tasks by type.

complete with a Back button, a customizable home page, and hot links—Intuit has added some welcome enhancements. Updated QuickTabs and redesigned menus (similar to those in Money 2000) divide tasks by type, such as Banking, Investing, and Taxes, making it simpler for you to keep track of what you want to do and what you've already taken care of. The Reports & Graphs Center puts all the product's data within easy reach in one location.

EASY MONEY

QUICKEN 2000 CAN'T quite match the simplicity of Money 2000, however. Money 2000 provides a streamlined, more consistent look that's easier to navigate straight out of the box—a boon for new users. And the Money Setup Assistant makes it simple to create new accounts; the account helper in Quicken 2000 isn't as complete or as helpful.

Money 2000 Deluxe has also beefed up its feature set, though here it still falls a bit short of Quicken Deluxe 2000. You can customize your Money home page more precisely than ever, with nearly 30 different components including account balances, common tasks, reminders, and a slew of news sources from Microsoft's own MoneyCentral site as well as BusinessWeek Online and Smart Money. New tax planning features let you estimate your taxes and capital

Quicken, Money Y2K Editions: Better Tools for Your Bucks

PERSONAL FINANCE

HOLD ON TO your wallet: The annual personal finance software upgrades are here. Both the latest versions of Quicken Deluxe and Microsoft Money are packed with features to help you track all aspects of your financial life, but each will appeal to different types of users. Intuit's \$55 **Quicken Deluxe 2000** is more than ever a power user's tool, while **Money 2000 Deluxe**, also \$55, focuses on simplifying household financial management. Current users of either who

are content with the version that they have needn't run out and buy these upgrades. But Quicken users who've caught the investing bug will appreciate some of 2000's new features, and Money 99 users who aren't entirely happy with the old version's interface will appreciate the upgrade's slick new appearance. I tried pre-production versions of both.

INVESTOR'S DELIGHT

QUICKEN DELUXE 2000 introduces an assortment of investment features—including

ing e-mail alerts about FTC stock-sale or purchase filings—targeting the burgeoning ranks of hard-core home-based traders. Employee Stock Option tracking lets you see if you are getting rich on those corporate handouts. A new online feature even lets users in most major U.S. cities check the selling price of recently sold local properties to figure out the current value of their own home, the better to monitor their net worth.

While the product's interface remains browserlike—

Money 2000 Deluxe

PRO: Streamlined interface, worthwhile new tax features.

CON: Lacks some of Quicken's more detail-oriented tools.

VALUE: Solid contender, especially for new users.

Street price: \$55

Microsoft

800/426-9400

www.microsoft.com/money

PRODUCT INFO NO. 761

Quicken Deluxe 2000

PRO: Loads of investing features and tools for the detail-oriented.

CON: Updated interface still isn't as consistent or as easy to use as Microsoft Money's.

VALUE: Great for online investors and anyone who tracks every penny.

Street price: \$55

Intuit

800/446-8848

www.quicken2000.com

(I couldn't test these features with my beta copy.) The ability to access financial services without being tied to the desktop will appeal particularly to frequent travelers.

Money 2000's simplicity and improved features make it a solid alternative to long-time market leader Quicken. I would recommend Quicken 2000 for people who want to delve deeply into their personal finances, and Money 2000 for new users and anyone more interested in a streamlined interface than details.

—Christopher Lindquist

gains and integrate directly with Microsoft's upcoming TaxSaver tax prep software. And to keep pace with a feature introduced in Quicken

99, Money is also adding "roaming" features, which let you view your accounts and portfolio, pay bills, and receive alerts from any Web browser.

Networkable DeskJet 970Cse Delivers High-Quality Color, Speed for Small Businesses

PRINTER

HISTORICALLY, the term *business ink jet* has been something of an oxymoron: Most color ink jets lack the speed, flexible paper-handling capabilities, sharp text print quality, and network connectivity that offices need. But Hewlett-Packard's new \$399 **DeskJet 970Cse** comes close to delivering those features. The 970Cse is a bit expensive for an ink jet, but worth the extra cost for some business users.

HP rates the 970Cse's performance at 10 pages per minute for color and at 12 ppm for black-and-white text printing; like most models, our shipping unit did not approach its rated speeds. But it's still quick enough for most uses. With text, it runs about 4 ppm—on average,

more than 25 percent faster than other ink jets we've tested. On color graphics, it produces 0.7 ppm, about average for its class. A full-page photo takes just 8 minutes to print.

The 970Cse's

printer, holds on to a newly inked page for about 30 seconds to allow the front to dry, and then sucks the page back into the unit to print the second side. In my tests, the device worked smoothly.

The 970Cse's print quality is comparable to that of the best ink jets we've seen before, among them the DeskJet 812C that was a Best Buy in September. You get clean (if not quite laser quality) text and rich images with vivid, stand-

out photos on glossy paper. You can network the printer via the \$170 HP JetDirect 170X print server, an option many offices will appreciate. One final bonus: This printer is dead quiet, unlike some other ink jets that make a racket.

Any office looking for strong color quality, quick text pro-



FOR MORE PRODUCT news and the latest announcements, check out the PC World Daily News Service at www.pcworld.com/news.

duction, and networkability should consider the 970Cse. But for perfect text output and even quicker printing at about the same price, a low-cost laser is still the way to go.

—Karen Silver ▶

**INK JET FOR****OFFICES:**

HP's DeskJet 970Cse

provides quality and networkability.

helpful paper-handling tools include a duplexer, which allows you to print on both sides of a page without removing the paper. The duplexer attaches easily to the back of the

DeskJet 970Cse

PRO: Strong print quality, especially on images; fast text speed; handy two-sided printing.

CON: Expensive; average printing speed on graphics.

VALUE: Double-sided capability and quick text speed may justify premium price for some small offices.

Street price: \$399

Hewlett-Packard

800/752-0900

www.hp.com

PRODUCT INFO NO. 763



THIS PRODUCT has been evaluated using tests designed by the PC World Test Center.

Better Ways to Organize Internet Research



FREE AND EASY: KeeBoo organizes Web content into books and libraries, but you may get volumes prepared by advertisers.

INTERNET UTILITIES

THE INTERNET CAN be a terrific research tool. But unless you have some way of organizing your findings, your online research can turn into a tedious cycle of surfing, copying, pasting, and bookmarking. A pair of new products—**Webforia Organizer 1.1** (\$50) and **KeeBoo** (free)—tackle this problem, letting you copy entire Web pages (graphics and all) into an organized file system on your hard drive. From there, you can annotate, highlight, and otherwise rearrange the pages offline, and

share them with other people.

I used a beta of Webforia Organizer and a shipping copy of KeeBoo to research and outline an upcoming writing project. Webforia is by far the more ambitious, installing a ClipBar in your Windows 9x taskbar tray that you left-click while browsing to save an entire page or highlighted text. Right-click the ClipBar icon to launch the full Organizer, which offers additional options for storing and annotating your saved Web pages. Using a familiar (if crowded) Windows Explorer-type inter-

face, you can sort out your downloaded content into libraries, and further separate pages into categories. When you move your cursor over page titles in a library, the Organizer creates summaries in pop-up boxes; if you need to see more, you can open a browser preview pane. And you can highlight elements within a page, search by keyword while offline, or use a multiple search engine option for online browsing.

KeeBoo takes a cuter approach. Like Webforia, it lets you save entire Web pages to your hard drive (you can also save text documents or image files). Pages are pasted into "books," which you can leaf through using the notebook-like interface.

BOOK IT, KEEBOO

WITH KEEBOO, you can highlight words and phrases, append electronic notes to pages (something Webforia does not permit), and search by keyword across multiple libraries. It's a nice system, considering that it's a totally free download. (The KeeBoo business plan includes putting banner ads in the interface and placing books created by online-content providers into your libraries when you first get the application or offering them via e-mail later on.)

Both products let you export your research so you can share it with others. Webforia requires that recipients also install the Organizer; KeeBoo gives you the option of exporting an HTML version. KeeBoo is a worthwhile freebie for

SmartSuite Upgrade

LOOKING FOR A ROBUST, elegant alternative to Microsoft Office? **Lotus SmartSuite Millennium Edition 9.5** may fill the bill. Like last year's 9.0 and 9.1 releases, the suite includes the Millennium editions of Word Pro for word processing, 1-2-3 for spreadsheets, Freelance Graphics for presentations, the Approach relational database application, and ScreenCam for desktop videos. New in the upgrade: Organizer 5 (instead of 4.1 Premium Edition) and Lotus FastSite 2 (instead of version 1.0) for Web publishing of documents in 25 formats, including the native formats of all major office suites. Instead of cc:Mail, you now get the desktop client for Notes 5. The new SmartSuite includes support for most Office 2000 documents as well as those created in Office 97 and Corel WordPerfect Office. However, you can only open PowerPoint 2000 files—you can't save to Microsoft's presentation application format. While the previous version of SmartSuite integrated IBM ViaVoice speech recognition technology into Word Pro, you can now also dictate into Lotus 1-2-3 spreadsheets—and you get the newer, Pentium III-optimized version of ViaVoice. Street-priced at \$399 (\$149 for upgrades), SmartSuite represents a solid value. Lotus Development; 800/343-5414; www.lotus.com

PRODUCT INFO NO. 765

—Pete Scisco

anyone in need of a basic research organizer; power users who want more features can download the 30-day trial version of Webforia before dropping that hefty \$50.

—Glenn McDonald ►

KeeBoo

PRO: Much easier to use and configure than Webforia, lets you attach electronic notes to pages.

CON: Lacks advanced organizing functions, third-party content may irritate some users.

VALUE: A worthwhile download for casual users.

List price: free

KeeBoo

650/482-2885

www.keeboo.com

Webforia Organizer 1.1

PRO: Powerful organizational system, customizable.

CON: Crowded Explorer-type interface, hefty price tag.

VALUE: Worthwhile for power users who don't mind paying for a complete online research system.

List price: \$50

Webforia

425/401-6500

www.webforia.com

PRODUCT INFO NO. 764

ThinkPad® 570



transformer

ultrabase

the new thinkpad 570.(dramatization)

notebook

price

This is how it works. Slip the ultralight, superthin ThinkPad 570 into an optional UltraBase and it transforms into an all-in-one desktop ready for the office or the road. ibm.com/thinkpad 800 426 7255, code tp160

holds floppy drive or extra battery and options like CD, DVD, Zip, extra hard drive,³ or SuperDisk LS-120

1" thin² / 4.0 lbs² / 12.1" or 13.3" active matrix display 4.0gb or 6.4gb hard drive / 64 - 192mb sdram mobile Pentium® II processor 300PE / 333 / 366 mhz

from \$2,699¹



¹Estimated reseller price for model 570/2AU. Price excludes UltraBase and other options. FDD/battery included. Actual prices may vary. ²Actual weight/thinness may vary due to vendor components, manufacturing process and options. Weight includes battery; excludes FDD and other options. ³Adapter required. mhz denotes microprocessor internal clock speed only; other factors may also affect application performance. gb=1 billion bytes for HDD capacity. PCs referred to in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

e-business tools

Sharp's Actius: One for the Road

NOTEBOOK

WITH ITS INCH-THICK case and 3-pound weight, Sharp Electronics' **Actius A250** is the ultralight notebook I want for my next trip. It won't slow me down, and it has attractive features you typically don't get in a slimmed-down model.

Actius A250

PRO: Ultralight with robust notebook features, great screen.

CON: Printer and serial port on external floppy, tiny function keys.

VALUE: A classy portable notebook at a fair price.

Street price: \$2499

Sharp Electronics

800/237-4277

www.sharp-usa.com

PRODUCT INFO NO. 766

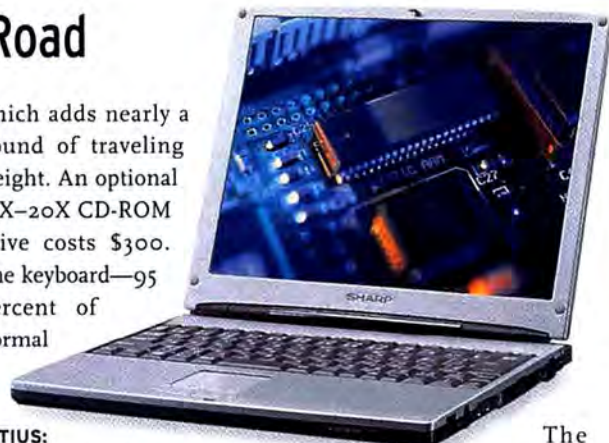
TEST THIS PRODUCT has been evaluated using tests designed by the PC World Test Center.

My \$2499 shipping unit had a Pentium II-300PE processor, 64MB of SDRAM, and a 6.4GB hard drive. I found the 11.3-inch TFT display large for an ultralight and exceptionally sharp (no pun intended). The screen uses new technology to reduce reflection and increase viewing angle: I could read the screen in just about any lighting condition, including bright sunshine—something most notebook screens don't permit.

With a PC WorldBench 98 score of 167, the Actius A250 performs on a par with most laptops in its processor class. Its lithium ion battery ran for only 86 minutes—typical for an ultraportable.

The serial, PS/2, and parallel ports are on the back of the included floppy drive unit,

which adds nearly a pound of traveling weight. An optional 12X-20X CD-ROM drive costs \$300. The keyboard—95 percent of normal



ACTIUS:

An ultralight with extras.

size—handled my touch-typing without a glitch. But the top row of function keys and a <Delete> key (which is located too close to the <Backspace>) are excessively small.

Nonetheless, the Actius does come with a built-in V.90 modem; a Type II PC Card slot; and ethernet, infrared, and two USB ports. And its touchpad is very responsive.

The Actius A250

is more than just a svelte PC for dashing off e-mail and short documents on the road. Rivals such as IBM's ThinkPad 240 and Compaq's Armada M300 have built-in parallel and serial ports but weigh a pound more. If true ultraportability is top priority, and you can live with the floppy drive/port replicator combo, the A250 makes a fine choice.

—Michael S. Lasky

Create 3D Characters With Attitude

3D GRAPHICS

METACREATIONS' \$249 **Poser 4** is a fairly priced tool for building models and animations of men, women, children, and even a few animals. The new version adds more preset characters and poses and is easier to use. Nonpros especially will appreciate the explanation that pops up when a cursor moves over a control.

My shipping copy ate up 240MB of hard disk space. It took me only a few minutes to create a figure, light it, and view it from several angles. Poser can save a model's movements as an AVI clip—time consuming, but fun. An included limited edition of



GO FIGURE: Poser makes creating 3D models easy, even for novices.

MetaCreations' Painter 3D lets you apply painterly looks. Poser automatically stores commands you can use with

other figures to speed up creation of groups. You can edit the command script instead of performing multiple undos.

Poser imports and exports 3D images in many formats, and animations in QuickTime or AVI. You need a Pentium system, but expect slow performance on pre-P-133 PCs. Optimization for 3D-accelerated hardware would have been nice. Still, Poser is worthwhile for 3D newbies and vets alike.

—Grace Aquino ►

Poser 4

PRO: Easy 3D figure creation; limited edition of Painter 3D included.

CON: Doesn't exploit 3D acceleration in graphics boards or CPUs.

VALUE: Terrific for Web designers, architects, and 3D novices.

Street price: \$249, upgrade \$129

MetaCreations

800/846-0111

www.metacreations.com

PRODUCT INFO NO. 767

PC 300PL

price

specs

options

control

@business tools

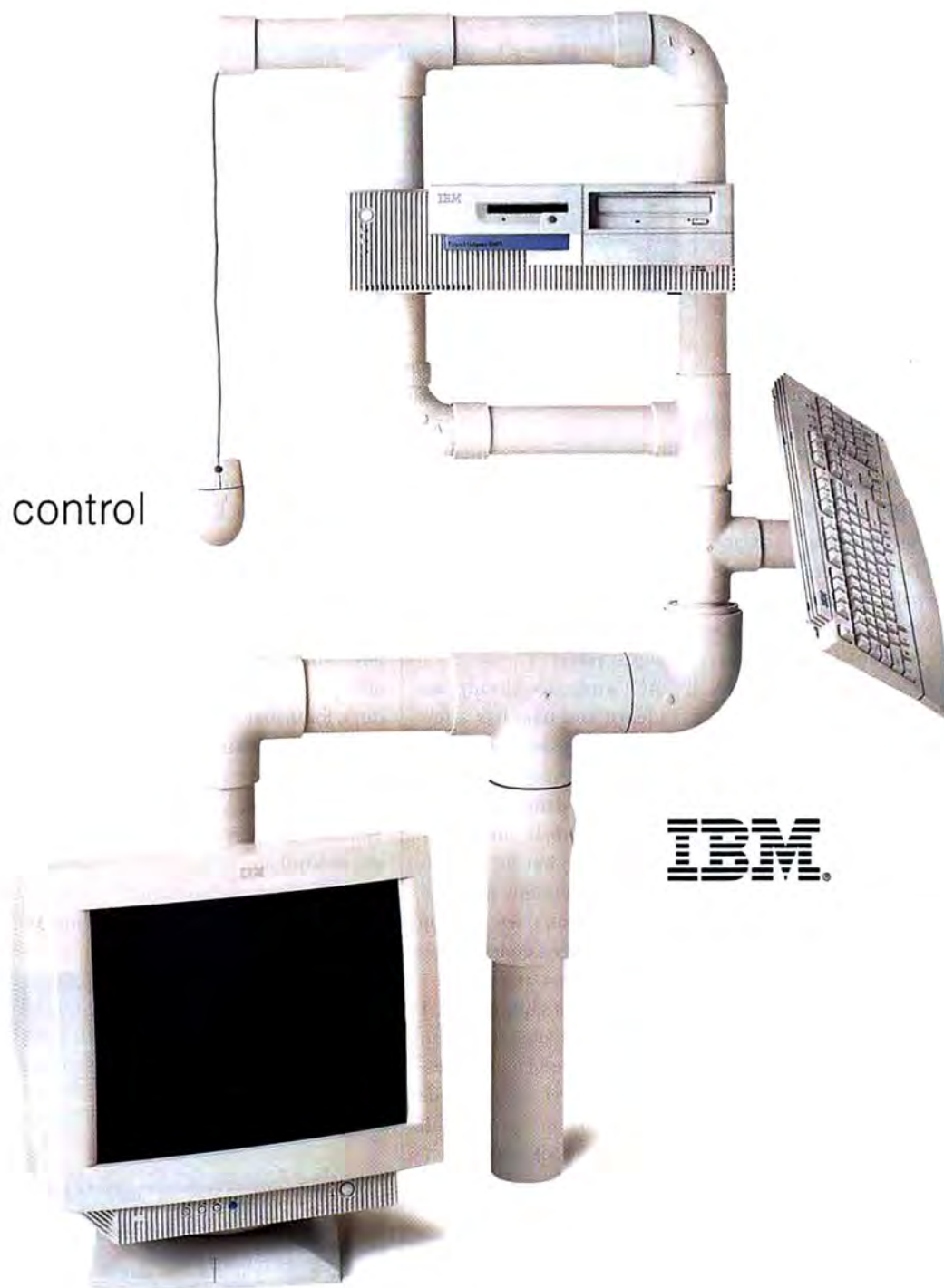
from
\$1,299*

Pentium® III processor (up to 550mhz)
3D AGP graphics (up to 8mb dram)
up to 768mb memory / 20.4gb hdd
integrated ethernet & audio

zip drive / cd rom
19" G96 monitor
(17.9" viewable)

Imagine PCs you control from virtually anywhere – over the network or the Web. PCs that integrate easily into your enterprise management software. PCs with time-saving features like LANClient Control Manager. It's the IBM 300PL. It's the ultimate in remote control. www.ibm.com/ibmpc
800 426 7255, code pc 140

remote control



IBM



* Estimated reseller price for model 6862-34U (CPU) and 65460AN (15" monitor). Actual prices may vary. MHz denotes microprocessor internal clock speed; other factors may affect application performance. GB = 1 billion bytes for hard drive capacity. All PCs in this ad ship with an operating system. IBM product names are registered trademarks of International Business Machines Corporation. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

ACT 2000 Tops for Sales Pros

CONTACT MANAGERS

FOR HARD-CORE sales professionals, a good contact manager is an essential business tool. I looked at two of the newest: Symantec's **ACT 2000**, a winning upgrade to an already powerful and hugely popular package; and the cheaper but convoluted **Smart Contact Manager 2** from Surado Solutions.

ACT 2000, which I tested in preproduction form, maintains the powerful, well-designed contact- and time-management features of previous editions. But the new version helps you track sales transactions efficiently using Dale Carnegie Training's 11-stage Sales Development Cycle and other sales-specific tools. You can associate potential deals with relevant contacts, estimate the deals' worth and like-



MAKING CONTACT: ACT 2000 sports new sales-oriented features and a vertical navigation bar reminiscent of Microsoft Outlook's.

lihood of success, and monitor their progress with graphs and reports. A new wizard allows you to easily create groups of prospects—for example, clients in New York who haven't bought anything from you in the past year.

ACT's interface, already easy to learn and use, has a few welcome improvements, such as fields that speed data entry by creating drop-down lists based on your input. A new vertical icon bar on the left side of the window (like Microsoft Outlook's) lets you hop quickly between contacts, calendar, to-do list, and e-mail.

Speaking of Outlook, ACT can now exchange data with Outlook's calendar. This feature, combined with previous hooks into Outlook's e-mail and address book, should benefit ACT users in Microsoft-centric workplaces.

Listed at \$200, ACT is a tad expensive—so Smart Contact Manager's \$89 price is an eye-catcher. Like ACT, this package has extensive reporting capabilities and potent fea-

tures for tracking your dealings with contacts; it also offers extras such as a networked In/Out Board that lets coworkers keep tabs on each other's whereabouts.

But my shipping copy suffered from odd lapses and was often cumbersome to use. You can't, for instance, create a repeating appointment on an alternating schedule (say, an every-other-week meeting). You can't perform many operations until you've saved the current record, and you must be in the main screen, not the calendar, to schedule a new

BETWEEN ATA Flash, CompactFlash, removable hard drives, and Zip drives, people who use portable PCs have had plenty of options for removable storage. But none of them combine low price and light weight like Iomega's **Clik PC Card Drive**. This 1-ounce Type II PC Card drive accepts 40MB Clik discs that cost as little as \$10 apiece when purchased in a 10-pack.

The PC Card Drive itself costs \$200. But if you use lots of removable media, Iomega's system beats spending \$140 on a single 40MB CompactFlash card or an ATA DataFlash PC Card—or carting around a \$130, 2.5-pound Iomega Zip drive and connecting cables. The Clik PC Card requires no special driver installation, and access speeds approach those of full-size hard drives: In my tests with a shipping model, a QuickTime movie played without so much as a stutter. Iomega; 800/697-8833; www.iomega.com

PRODUCT INFO NO. 675

—Michael S. Lasky

activity. So despite the higher price, ACT 2000 is easily the smarter buy.

—Harry McCracken ▶



IN 'N' OUT: Smart Contact Manager tracks employees' whereabouts and costs only \$89. But its interface is clunkier than ACT 2000's.

ACT 2000

PRO: Easy to use, powerful, new sales tools and Outlook integration.

CON: Somewhat expensive.

VALUE: Worthy upgrade for sales and other customer-oriented work.

List price: \$200, upgrade \$100

Symantec

800/441-7234

www.symantec.com/act

PRODUCT INFO NO. 659

Smart Contact Manager 2

PRO: Inexpensive for a full-fledged contact manager.

CON: Difficult to use, missing some features.

VALUE: A deal only if you don't mind a clumsy user interface.

List price: \$89

Surado Solutions

800/478-7236

www.surado.com

PRODUCT INFO NO. 660

IntelliStation E Pro
with Windows NT*

price

from \$1639*
monitor not included

speed

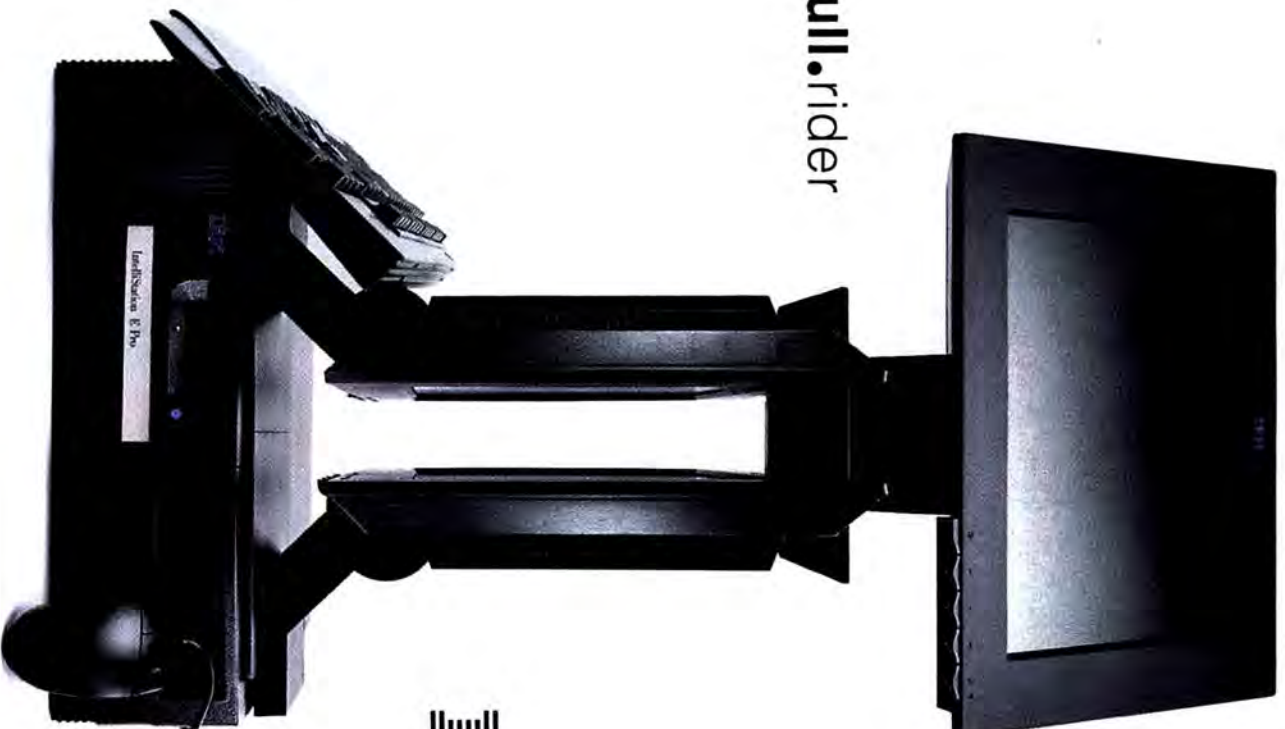
Pentium® III processor 500mhz
IBM® Fire GL1 / matrox G200
up to 768mb ram

reliable

Real reliable. Real fast. The IntelliStation E Pro is loaded with standards-based management features like Wake on LAN® and Alert on LAN® which can mean more uptime. Less downtime. Exactly what you need to ride the bull. www.ibm.com/intelystation or 800 426 7255. code is130

 **e-business tools**

bull.rider



IBM

*Estimated reseller price for model 6893/80U. Actual prices may vary. *Fire GL1 is a trademark of Diamond Multimedia Systems, and is used under license. *Variable read rate. Actual playback speed will vary and is often less than the maximum possible. mhz refers to microprocessor speed; other factors can affect performance. Wake on LAN and Alert on LAN are products of IBM/Intel Advanced Manageability Alliance and are trademarks of IBM Corporation. PCs referenced in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. Microsoft, Windows and Windows NT are trademarks of Microsoft Corporation. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

E Pro Options

memory 128mb 100mhz ECC sdram
enhances overall performance.

multimedia Add a 6x-24x dvd-rom†
drive to handle the latest in media.

back up With a 10/20gb TRS internal IDE
tape drive you can back up critical data.





WITH ORDINARY
PRINTERS,
YOU SEE THE
FLOWERS
BLOOMING.

WITH OUR
PRINTERS,
YOU SEE
THE LADIES
DANCING.

YOU'VE GOT TO SEE IT IN

EPSON

COLOR.



Anyone can show you the flowers. But the textile company that created this catalogue wanted to show you more. Like the incredible fabrics worn by the 38 women you see here. Sheer enough to pass for petals. In a palette only nature could imagine. So what did they choose to capture all this color and detail? An Epson printer. The only one they could trust to separate the beauties from the blossoms. Which, when it comes to printers, is what separates the men from the boys.

THE ONLY PRINTERS WITH EVERYTHING YOU NEED FOR ALL THE DETAIL YOU WANT.

To capture the world's most brilliant images, only Epson® color ink jet printers have the PerfectPicture® Imaging System for: 1440 x 720 dpi • Micro Piezo™ technology, for a cleaner, smaller droplet – as small as 3 picoliters • Fast print speeds – up to 12 PPM black/10 PPM color • Quick-drying inks • PC/Mac/USB compatibility. And remember, only Epson supplies guarantee Epson quality. For more information, call 1-800-GO-EPSON or visit www.epson.com.



Epson Stylus Color Ink Jet Printers.
Sheer brilliance starting at \$129.*

* \$129 on the EPSON Stylus Color 660 after a \$30 mail-in rebate. Up to 12 PPM black/10 PPM color with the EPSON Stylus Color 900. Price may vary. Epson, EPSON Stylus and Micro Piezo are trademarks/registered trademarks of Seiko Epson Corp. PerfectPicture is a registered trademark of Epson America, Inc. ©1999 Epson America, Inc.

Pointers in the Right Direction

INPUT DEVICES

FOR MOST PEOPLE, the mouse that came with their PC is the only pointing device they will ever need. But four new alternatives cater to those seeking additional comfort, convenience, or functionality geared to specific tasks such as graphics or presentations.

A TAIL-FREE MOUSE

LOGITECH's sculpted, pearl-and-gray **Cordless MouseMan Wheel** adds cable-free convenience to an input device whose corded version has won



NICE
MICE:
MiniMouse
(top), Cordless
MouseMan
Wheel.

our World Class Award for the last two years. Logitech's use of radio-frequency technology eliminates the line-of-sight restrictions that plague infrared-based de-

vices. I was able to use a pre-production unit from 10 feet away, and through obstacles such as a book and even a wall. Like its corded predecessor, the \$60 device is designed for right-handed users and comes with several programmable buttons.

An even more powerful RF device, Interlink Electronics' \$200 cordless **Freedom Writer Pro** is a touchpad designed for presentations. With this 5-ounce, 3.2-inch-square box, you can move as far as 40 feet from a notebook and still run a slide show, which can make your presentation more dynamic. My shipping unit had a highly responsive touchpad, eight programmable buttons, and a stylus for making annotations on screen, or typing on an on-screen keyboard.

Unfortunately, you must plug the base transceiver into the serial port, the PS/2 port, and the keyboard port. Because few notebooks come with all three, many mobile professionals will not be able



to use this otherwise worthwhile presentation tool.

GET ON THE BUS

FREQUENT TRAVELERS who don't care for their notebook's built-in pointing device should check out Targus's \$30 **USB MiniMouse**. Two-thirds the size of a conventional mouse, it should fit next to most notebooks on a cramped airplane tray-table. People with large hands might have difficulty adjusting, but the finger-shaped mouse buttons on my shipping unit were easy to use. And the USB interface means you don't have to reboot when you hook up this 2.4-ounce mouse.

Graphics artists who work



FLAT POINTERS: Wacom's USB Intuos tablet (left) is for artists; Freedom Writer Pro is for presenters.

on both PCs and Macs should welcome Wacom's line of **USB Intuos Graphics Tablets**. You can use these hot-swappable tablets alongside your old PS/2 or serial mouse (helpful fallbacks for tablet tyros) and with most Mac systems, too. My 6-by-8-inch shipping unit goes for \$384; larger ones cost up to \$820. Intuos tablets come with a cordless, pressure-sensitive stylus for drawing or navigating. Older, serial-port versions are cheaper but require a free port and IRQ—increasingly scarce commodities. For drawing, digital signatures, and handwritten annotations, the tablets are very convenient.

—Michael S. Lasky ▶

Cordless MouseMan Wheel

PRO: Adds wireless convenience to great ergonomic input device.

CON: Designed for right-handed users only.

VALUE: Well worth the price for comfort, customization, and cable-free convenience.

Street price: \$60

Logitech

800/231-7717

www.logitech.com

PRODUCT INFO NO. 661

Freedom Writer Pro

PRO: Cable-free touchpad has customizable button for presentations.

CON: Base-station connection requires three free ports; pricey.

VALUE: Extremely versatile presentation device that most mobile professionals won't be able to use.

Street price: \$200

Interlink Electronics

800/340-1331

www.interlinkelectronics.com

PRODUCT INFO NO. 662

USB Intuos Graphics Tablets

PRO: Cross-platform convenience, works with existing input devices.

CON: Pricey; tablet with stylus requires some time to learn.

VALUE: Fine tablets for graphics, digital signatures, and annotation.

List price: \$200 to \$820

Wacom Technology

800/922-6613

www.wacom.com

PRODUCT INFO NO. 663

USB MiniMouse

PRO: Lightweight mouse for travelers offers USB plug-and-play convenience.

CON: Large-handed people may have difficulty using.

VALUE: Great for working with a notebook in a confined space.

Street price: \$30

Targus

800/998-8020

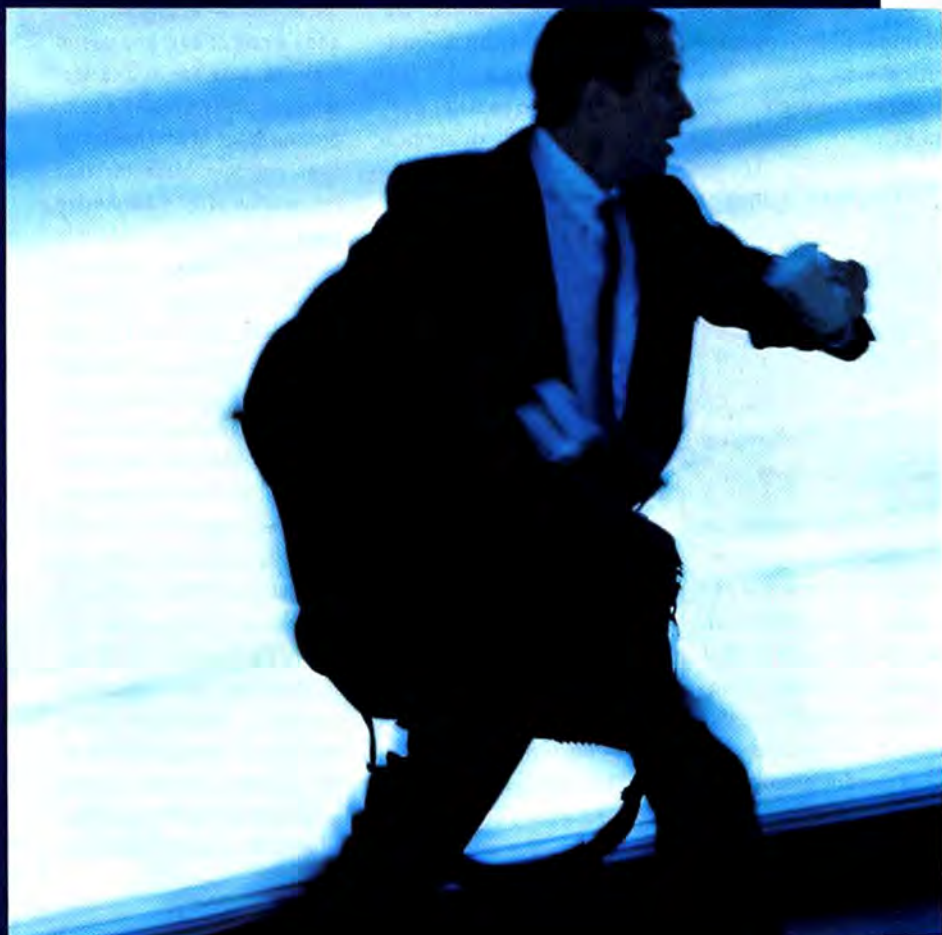
www.targus.com

PRODUCT INFO NO. 664

Six countries in six days.



APC SurgeArrest®
Notebook Pro



Good thing you know how to pack like a pro!



"Why risk zapping your notebook PC with a power surge or spike? At just 8 ounces, APC's SurgeArrest is a tiny way to insulate your portable from APC power anomalies."

PC Computing



NOTE: The Notebook Pro works with all two prong-style (C-8 connector) adapter blocks, available on most notebook computers. If your notebook does not have such a connector, APC offers the SurgeArrest Notebook for (120Vac only) surge protection.

You can find APC power protection products at:



©1999 American Power Conversion. All trademarks are the property of their owners. SA4CB-CF • (800)347-FAXX PowerFax • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

Circle 6 on card or go to www.pcworld.com/productinfo

Real Life

Quaint hotels with pre-war wiring.
Phone service that defies all logic.
You have critical communications
that must get through. Help APC!

Fact

APC's new SurgeArrest Notebook Pro Surge Protector keeps notebook computers safe anywhere on the planet. With an innovative multi-voltage design, the Notebook Pro provides laptop computers with "global" surge protection and easy one-time set-up. Just attach and go, to keep your laptop free from bad power in an uncertain world. APC's Excess Current Detection feature warns users of any potential modem damage before connection. For complete AC/telephone line surge protection for notebook computers,

don't leave home without this powerful travel necessity. Purchase APC's SurgeArrest Notebook Pro now, for under \$40.

FREE The Complete Guide to Surge Protection.

Learn how to choose the right
surge protection for your system.



Order now Key Code n333z
<http://promo.apcc.com>

888-289-APCC x8468 • Fax: 401-788-2797

APC
Legendary Reliability™

New MP3 Players: Music to Your Ears

MP3

IF YOU'VE BEEN hankering after a portable MP3 player, but want choices beyond the pioneering Rio PMP 300, Creative Labs' **Creative Nomad** and Pine's **D'music** could be what you've been waiting for. But as usual with products on the bleeding edge of a new technology, these devices are expensive forerunners of cheaper things to come. I looked at shipping versions of both products.

The smooth, matte-silver, magnesium-cased Creative Nomad (\$250) is very small—not much bigger than a pager. It looks so future-cool, I wanted to make excuses for its

poorly designed controls—small, identical nubs that I found impossible to operate by touch alone.

The Nomad connects to your PC



CREATIVE LABS' NOMAD looks sleek and has a built-in FM radio.

while resting in a convenient charging and docking station (rechargeable batteries are included). I occasionally had trouble convincing my PC that the Nomad was hooked up, but always succeeded eventually. Once the device does connect, you can download tunes with a Nomad-customized version of MusicMatch's capable jukebox software, which also lets you organize your music collection and collect audio CD tracks. The Nomad ships with 64MB of RAM—32MB built in and another 32MB in an included SmartCard. That's enough for about an hour of MP3 music compressed at an optimal 128 kbps.

The \$188 Pine D'music is both less expensive and less polished. Its case, although not much larger than the Nomad's, feels more clunky—but Pine wins points

for its easy-to-use, circular thumbpad-control layout. The D'music's PC connection is spartan: a simple cable that plugs into the parallel port,

along with an application for uploading and downloading tunes. The D'music ships with 32MB of RAM built in, enough for only 30 to 35 minutes of 128-kbps MP3 playback.

In contrast to the first Rio (a newer version, the Rio 500, was not yet ready for testing at this writing), both devices include extra, non-MP3 features such as the ability to record through built-in condenser microphones. The Nomad has a digital FM radio, and by the time you read this, Pine Technology expects to be shipping a \$219 D'music that has one too. The sound quality of the devices was what you would expect from a portable audio device—good, but not amazing (assuming that you start out with an MP3 file



I GOT D'MUSIC IN ME: Pine's D'music player costs less than the Nomad but isn't as slick.

Creative Nomad

PRO: Charging station, chic silvery design, FM radio, 64MB of RAM holds an hour of music.

CON: Awkward controls, occasional hiccups in PC connection.

VALUE: If you must have your MP3, the Creative Nomad does it in style—for a price.

Street price: \$250

Creative Labs

www.nomadworld.com

408/428-6600

PRODUCT INFO NO. 665

D'music

PRO: Less expensive than the Nomad, with better controls.

CON: No frills, only 32MB of RAM.

VALUE: Still too pricey for serious consideration.

Street price: \$188

Pine Technology USA

www.pineusa.com

510/668-0378

PRODUCT INFO NO. 666

Adaptec Upgrades Easy CD Creator Deluxe

ADAPTEC'S \$99 **Easy CD Creator 4 Deluxe**, the latest incarnation of the popular CD-writing software, adds a raft of new and useful features. Take Two, a disaster-recovery utility, creates a compressed image of your hard drive over multiple discs for fast restoration after a hard drive crash. On the music front, the program can convert files in the popular MP3 format to standard music CDs, and the improved jewel-case insert and CD label designer includes predesigned templates. Adaptec has also enhanced the video and audio editing abilities (for example, you can cross-fade between CD tracks just like a professional DJ). But the neatest new feature in my preproduction copy was the ability to use the CDDb music database to get artist, title, and timing information off the Internet, so I could automatically create on-screen playlists and jewel-case inserts for my compilation CDs. Adaptec; 800/442-7274; www.adaptec.com

PRODUCT INFO NO. 676

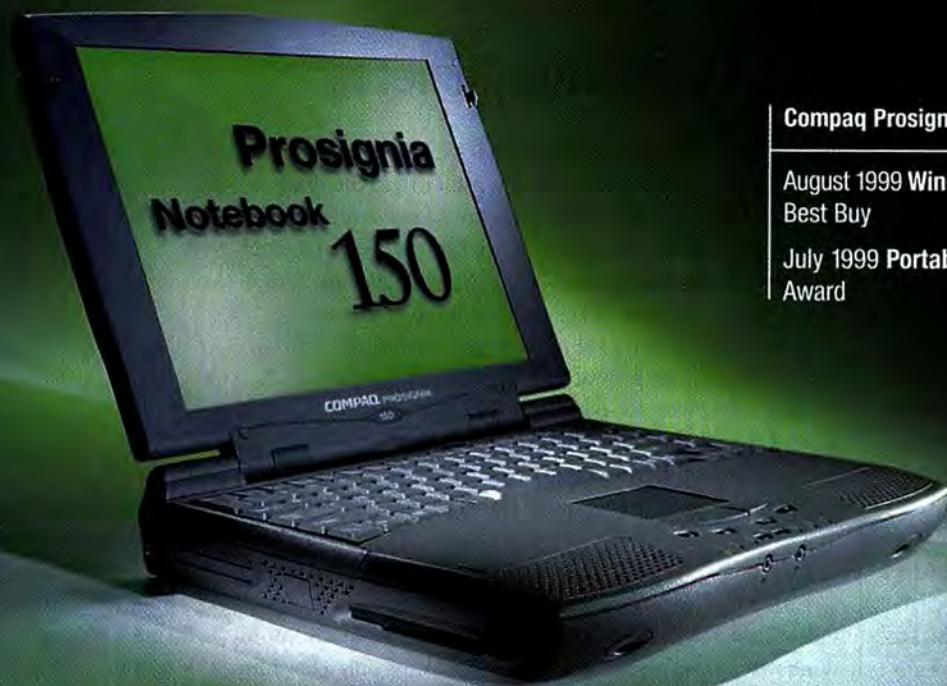
—Stan Miestkowski

encoded at a decent bit rate).

But prerecorded MP3 content is scarce, so to get much use from these players, you'd have to devote considerable time to "ripping" tracks off audio CDs—and you'd be paying an awfully high price to go to all that trouble.

If you absolutely must have a portable MP3 player, go for the Nomad. It looks great and comes with twice as much capacity as the D'music. Plus, the included docking station is wonderfully convenient, if a bit temperamental.

—Cameron Crotty ►

**Compaq Prosignia Notebook 150 Awards:¹**August 1999 **Windows Magazine** — WinList:
Best BuyJuly 1999 **Portable Computing** — Lizzie
Award

Every company needs overachievers. Call Compaq for yours.

You know how valuable an extraordinary performer can be to a growing business. At \$1,499 the Compaq Prosignia Notebook 150, powered by a 350/100MHz AMD[®] processor, gives you outstanding productivity at a great price. It's ready to go right out of the box, with preloaded software that immediately gets the power of the Internet working for your business. What's more, the CD-ROM drive, diskette drive, and modem are built right in. Add all that to business advantages like 24x7 dial-up tech support — including expert guidance from your authorized Compaq reseller — and you'll agree that the Prosignia Notebook 150 gives you way more than you'd expect. So call today for the hardworking Prosignia Notebook 150 and add these overachievers to your team.

PROSIGNIA NOTEBOOK 150**\$1499¹****\$50² Monthly lease³**

- AMD-K6[®]-2 350/100MHz Processor
- 4GB SMART Hard Drive⁴
- 32MB/160MB SDRAM
- 12.1" CTFT (800 x 600) Display
- 24X Max CD-ROM Drive⁵ 3.5" 1.44MB
- Compaq 56K V.90 Data/Fax Modem⁶
- Li-Ion Battery
- Microsoft[®] Windows[®] 98
- Free⁷ Trial of Compaq Online Services
- One-Year Worldwide Limited Warranty⁷

PROSIGNIA NOTEBOOK 150**\$1899¹****\$64² Monthly lease³**

- AMD-K6-2 400/100MHz Processor
- 4GB SMART Hard Drive⁴
- 64MB/192MB SDRAM
- 14.1" CTFT (1024 x 768) Display
- 24X Max CD-ROM Drive⁵ 3.5" 1.44MB
- Compaq 56K V.90 Data/Fax Modem⁶
- Li-Ion Battery
- Microsoft Windows 98
- Free⁷ Trial of Compaq Online Services
- One-Year Worldwide Limited Warranty⁷

**To buy now****Call 1-888-518-4801****Go to www.compaq.com****COMPAQ**

All prices shown are Compaq prices. Retailer and Reseller prices may vary. ¹Advertised configurations may vary from award-winning configurations. ²Prices shown are subject to change and do not include applicable state and local sales tax or shipping to recipient's destination. ³Financing available through Compaq Financial Services (CFS) to qualified U.S. businesses, subject to credit approval and execution of CFS documentation. Monthly payments are based on 36-month Fair Market Value lease, and do not include taxes, fees, or shipping charges. Other fees and restrictions may apply and CFS reserves the right to change or cancel this program at any time without notice. ⁴For hard drives, GB=billion bytes. ⁵24X Max CD-ROM data transfer rates may vary from 150 to 3600 KB/s. ⁶V.90 Protocol: V.90 Modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. ⁷Compaq Online Services: Free 30-day trial requires Internet access capability. ⁸Certain restrictions and exclusions apply. Call (800) OK COMPAQ for warranty details. ©1999 Compaq Computer Corporation. All rights reserved. Compaq, the Compaq logo, and Prosignia are registered trademarks and Better answers is a registered service mark of Compaq Computer Corporation. Microsoft is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries. AMD-K6 is a registered trademark of Advanced Micro Devices, Inc. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. 1753/10/99

Budget Buys in USB Desktop Cameras

VIDEO CAMERAS

VIDEO CAMERAS for the PC—those cute little balls that perch on top of your monitor—aren't new. But up to now, even low-end models haven't been cheap. That's changing: Easy-to-use USB models deliver excellent features at new low prices. I was impressed by both a preproduction version of Logitech's **QuickCam Express** and a shipping **Video Blaster WebCam 3** from Creative Labs.

With a street price of \$50, the QuickCam Express ain't fancy, but—like most Logitech products—it boasts a neat design. It's basically a bone-colored ball on a small metal stick anchored to an included rubber stand (or a tripod, if you've got one).

After you've installed the



VIDEO BLASTER WEBCAM 3 can continually update a photo on a Web site at intervals you set.

software on a Windows 95 OSR2 or Windows 98 system, you simply plug the cable into a free USB port; the installation finishes in moments. A simple little desktop application has buttons for recording, playing, and e-mailing video clips (in Real Media's .rm, Windows Media Player .asf, or .avi format; or as applications that the recipient simply clicks to play). You can also create

still photos or start videoconferencing using Microsoft's NetMeeting (which the setup software installs). You can adjust the focus with a small ring around the lens, or tinker with brightness, hue, and other settings in the software. Novices might wish for more printed instruction than the quick-start pamphlet provides, but the on-screen help is solid.

PUT PIX ON YOUR SITE

THE SLEEK, charcoal-colored Video Blaster WebCam 3 (for Windows 98 only) looks a bit more sophisticated than the QuickCam Express, comes with a bit more printed setup help, and has a steeper price—\$80. The camera lens, which

also has a focusing ring, is mounted in a hinged attachment to a small base with four tiny feet. The software bundle has two principal applications: WebCam Control helps you adjust settings and create and manage video clips and stills, and WebCam Monitor

lets you put "live" photos on a Web site and update them automatically at intervals you determine. Also included with the WebCam 3 are Arcsoft's Polaroid PhotoMax for editing and e-mailing videos and images (more full-featured but not as convenient as the e-mail capability in Logitech's video-capture app), and Microsoft NetMeeting.

I found the .avi videos I

made with WebCam 3 a bit smoother than the default captures I made with QuickCam Express (which use compression). QuickCam supports up to 15 frames per second at 352 by 288 pixels, or 30 fps at 176 by 144;

WebCam 3 supports much higher resolutions at the same speeds (640 by 480 images at 15 fps, or 352 by 288 at 30 fps). Using one of several templates included in WebCam Monitor, it took me only a few minutes to start putting images of my cluttered work space on my Web site. In addition to updating the image at preset time intervals, the application can also update it whenever the camera's motion sensor detects movement—so you can use the camera for remote monitoring. WebCam Monitor will even automatically dial up your ISP to update images over a phone hookup. But don't expect to put full-motion video on your Web site—WebCam Monitor just updates a still photo, and visitors to your site have to reload or refresh the page to get a new still.

QuickCam Express

PRO: Great price, supereasy video e-mail and conferencing, excellent USB connectivity.

CON: The printed documentation is skimpy.

VALUE: Terrific way to get started with desktop video.

Street price: \$50

Logitech

800/231-7717

www.logitech.com

PRODUCT INFO NO. 667



SMILE! LOGITECH'S QuickCam Express camera costs just \$50.

Both desktop cameras performed adequately on NetMeeting, a videoconferencing tool that still feels more appropriate for home use than for business meetings. But at these prices, and at this level of user-friendliness, desktop videoconferencing may well be poised for a great leap forward in consumer acceptance. QuickCam Express is a good deal for most users, and its simple software interface outweighs its lack of extensive printed documentation. But if you want to run a personal Web cam, create higher-resolution images, or do more image editing, spend the extra \$30 for Creative Labs' product.

—Yardena Arar ►

Video Blaster WebCam 3

PRO: Excellent USB connectivity, simple setup for continually updating a photo on a Web site.

CON: Not as great a deal as QuickCam Express, nor as easy to use.

VALUE: Software and higher resolution are worth premium for some.

Street price: \$80

Creative Labs

800/998-5227

www.creative.com

PRODUCT INFO NO. 668

QUICK MONEY SAVER



WHAT DOES QMS MEAN TO YOU?

You sacrifice many things in the name of time and economy, but your image shouldn't be one of them. Bring quality and affordability to your ideas with a high-resolution color laser printer from QMS.® The award-winning QMS *magicolor*® series boasts speeds of four color pages per minute, and 16 for black and white. And they're as easy to use as they are efficient.

Network ready and fully upgradeable, QMS color printers will grow with your business.

Color Laser Printers
Starting As Low As

\$1299*



Laser printers that enhance your vision.
Circle 197 on card or go to www.pcworld.com/productinfo

1-800-523-2696
www.qms.com

*All prices in U.S. dollars. © 1999 QMS, Inc. QMS, the QMS logo, and *magicolor* are registered trademarks of QMS, Inc. All other trademarks or registered trademarks are the property of their respective manufacturers. G.S.A. contracts are available. 2/99

Upgrade Your PowerPoint Graphics

GRAPHICS ADD-ONS

HAVE AUDIENCES been nodding off during your PowerPoint presentations? Consider a graphics plug-in such as **PowerPlugs: PhotoActive FX I** from CrystalGraphics or **PresentationPro** from Interactive.

CrystalGraphics' \$79 **PowerPlugs: PhotoActive FX I** boasts

more than 140 still and animated photo effects; it's a great choice for business or SOHO users. Effects, including some customizable ones, are applied from either a floating toolbar or additional options in PowerPoint's Format menu. **PhotoActive FX** renders and saves animations in

.avi format, which can be time-consuming: An animated *Approved* stamp took about 4 minutes to create using my shipping copy but only 5.6 seconds to run.

PresentationPro's templates would look at home in a Fortune 1000 corporate presentation. My shipping copy of PresentationPro's Office 2000 version uses the .gif file format for animated effects, so files are smaller and rendering times shorter—a definite plus for presentations that viewers must download (older versions still use .avi).

PresentationPro templates aren't inexpensive, but to produce graphics of comparable quality from scratch, you'd need to spend far more for a professional designer. Choose **PhotoActive FX** if you want to upgrade presentation photos;



POWERPLUGS: PHOTOACTIVE FX I lets you add animation and nifty effects, like the boxed look shown here, to PowerPoint presentations.

PowerPlugs: PhotoActive FX I

PRO: Good price; simple, customizable photo and animation effects.

CON: Animations can render slowly.

VALUE: Easy PowerPoint upgrade.

Street price: \$79

CrystalGraphics

800/394-0700

www.powerplugs.com

PRODUCT INFO NO. 669

PresentationPro

PRO: Slick designer templates.

CON: Expensive; animation effects not customizable.

VALUE: Worthwhile for image-is-everything presenters.

Street price: Individual templates \$49 to \$99, collections \$129 to \$199

Interactive

800/379-6393

www.presentationpro.com

PRODUCT INFO NO. 670

spend extra on Presentation Pro for a more sophisticated, professionally designed look.

—Richard Jantz

Watch Out, Quark—Here Comes InDesign

DESKTOP PUBLISHING

GRAPHICS DESIGNERS and high-end publishers have long made QuarkXPress their page-layout application of choice. But Quark just got some serious competition. Adobe Systems' \$699 **InDesign** (for Windows 95/98 and Mac) has two key advantages over its arch-rival program: It integrates seamlessly with Adobe's graphics applications (Photoshop, Illustrator, Acrobat, and so on) and third-party plug-ins. And its ability to convert files created for print publication into Web-ready HTML or PDF modes has no peer.

Strong points in our preproduction copy of InDesign included excellent navigational tools, the ability to perform multiple levels of "undo," and automatic saves after every keystroke rather than after a fixed number of minutes. For the most part, InDesign's layout tools match QuarkXPress's in range and precision (though the program lacks Quark's ability to convert line adjustments entered in inches to picas). And unlike Quark, Adobe has a reputation for good customer service.

To encourage QuarkXPress users to jump ship, InDesign

offers a frames-based design; tools that mimic Quark's; and most QuarkXPress 4.0 keyboard shortcuts. Converting Quark-created documents to InDesign format is easy and nearly flawless, though some type inevitably reflows. Other drawbacks: InDesign has far fewer third-party plug-ins than Quark. And QuarkXPress 5 (expected within six months) may incorporate many of InDesign's innovations, particularly HTML/PDF friendliness. Still, InDesign could easily lure publishers not committed to Quark—as well as Quark veterans who publish both

online and in print. A \$299 promotion for Quark and Adobe upgraders who buy InDesign in 1999 should help.

—Kate Godfrey and
Steven Gray ▶

InDesign

PRO: Professional publishing package integrates seamlessly with Adobe graphics apps; Web friendly.

CON: Quark veterans may not want to deal with conversion issues.

VALUE: Merits serious consideration from graphics pros.

Street price: \$699 (\$299 for users of qualifying Adobe apps or QuarkXPress through 1999)

Adobe Systems

800/562-3623

www.adobe.com

PRODUCT INFO NO. 671

i have the world at my fingertips...
one world... one phone call



- Multi Link Capability
- Web Hosting
- Web Graphics
- 56K V.90 True Unlimited Access Accounts
- 2200 Local Access Numbers WorldWide
- E Commerce Powered By Cold Fusion
- Telnet
- Web Design
- UseNet

If you're looking for a reliable connection with state-of-the-art speed, then you need to call **Cruisenet** today, or sign-up online at www.cruisenet.net

Circle 59 on card or go to www.pcworld.com/productinfo



Cruisenet, LLC
2095 Dunbarton Drive
Suite 106
Jackson, MS 39216

(601) 366-1119

Toll Free 1-877-778-7166

Quick Storage for Small-Business Networks

STORAGE
IF YOU'RE LOOKING for a way to share files on your small office network, or want to give users an easy method to back up their PCs, a new generation of plug-and-play network appliances lets you add network storage almost instantly. I tested two: a pre-production version of Intel's 12GB **InBusiness Storage Station** (\$999, or \$1399 for 24GB) and a shipping 20GB **NetGear Network Disk Drive** (\$1299, or \$799 for 8GB).

Both units (each about the size of a notebook PC) lived up to their respective vendor's claims of no-brainer installation: I had each one up and running in about 10 minutes. You'll need a TCP/IP network. A setup program you can run on any system on your network makes the drives accessible to the entire network. You then install a small utility

on each network computer that maps it to a normal drive letter, and you're ready to use them like any hard drive.

Both boxes have browser-accessible, password-protected utilities for setting up public folders, or private folders accessible only to specific users. Intel adds Second Copy to automatically back up designated directories or files hourly.

NetGear's box has more status lights and is rack-mountable.

The performance of the two units was essentially identical: fast. On my 100-mbps network, it took 2 minutes and 15 seconds to copy 230MB of mixed files from my PC to each network drive—exactly as long as it took to copy the same files to a different drive within my PC. The boxes also

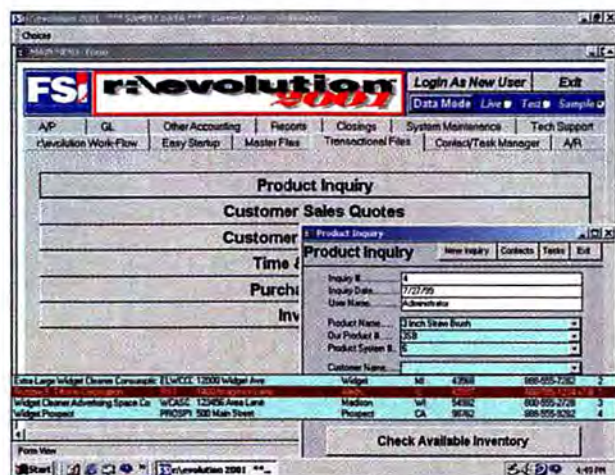
work with 10-mbps networks, but obviously more slowly.

At \$58 to \$100 per gigabyte of storage, these drives cost a lot less than a new server but considerably more than typical high-performance hard drives, which run about \$18 per GB.

But if you want to be up and running in minutes, network drives are the way to go. For most users, Intel's box edges out NetGear's, with slightly lower cost per MB and the useful Second Copy utility.

—Stan Miastkowski

Revolution 2001: Beyond Basic Bookkeeping



REVOLUTION 2001 has a quirky interface, but the \$299 price is right.

Though Revolution 2001 runs under Windows 9x and NT, it eschews Windows' standard user interface in favor of its own quirky menu system. Be prepared to invest a considerable amount of time learning what the program's capabilities are—and just how to access them.

Revolution 2001 is not easy to use, but it does fulfill its claim of delivering high-end accounting capabilities at a bargain price.

—Richard Morochov

InBusiness Storage Station

PRO: Easy to install; Second Copy utility automatically backs up files.

CON: Limited status lights.

VALUE: Lowest cost per GB.

List price: 12GB \$999, 24GB \$1399

Intel

800/538-3373

www.intel.com/network

PRODUCT INFO NO. 672

Network Disk Drive

PRO: Easy to install, good status lights, rack-mountable.

CON: Costs more per GB than Intel.

VALUE: An instant-storage deal.

List price: 8GB \$799, 20GB \$1299

NetGear

888/638-4327

www.netgearinc.com

PRODUCT INFO NO. 673

ACCOUNTING SOFTWARE

UNTIL RECENTLY, if your business outgrew Intuit's QuickBooks or Peachtree's line of small-business accounting systems, you had to pay thousands of dollars for a package with more features. Now, a program from Farber Systems with the unwieldy name of **Revolution 2001 MIS, Accounting & General Ledger** aims to deliver heavy-duty accounting software at the wallet-pleasing price of \$299.

Revolution 2001 is intended

for a somewhat larger business than the typical QuickBooks customer, and one that values capabilities over ease of use. Manufacturers, for example, will appreciate the industrial-strength bill of materials that can go ten levels of detail deep. The program will handle the general ledger needs of several companies and automatically settle their inter-company accounts. Revolution 2001's developer, Farber Systems, will customize the program at an additional cost.

Revolution 2001 MIS, Accounting & General Ledger

PRO: Industrial-strength accounting at a small-business price.

CON: Unconventional user interface is difficult to learn.

VALUE: A great deal for users who need more than Peachtree or Intuit deliver and are willing to learn a complex program.

Street price: \$299

Farber Systems

www.revolution2001.com

800/650-2667

PRODUCT INFO NO. 674

67% of Gateway owners come back for more.*

Thanks to everyone who made us #1 in customer loyalty.**



Source: AC Nielsen Inc./Market Watch. Of U.S. households owning a Gateway PC who purchased January - March 1999, 67% purchased another Gateway system.

Source: AC Nielsen Inc./Market Watch. October 1998 - March 1999.



Gateway Essential 400c

The Gateway™ Essential Line: powerful PCs at practical prices.

Okay, maybe you don't need an astrophysics supercomputer. But you still want a fast processor and ample memory and drive space. Look no further than Gateway Essential PCs. With video, sound and Intel® processors—and affordable prices—they're compromise-free PCs. Each one includes a year on the Internet.¹ Pick a model, and we'll customize it the way you want.

Gateway Essential 400c

Intel® Celeron™ Processor 400MHz
with 128K Cache
32MB SDRAM
EV500 15" Monitor (13.9" viewable)
8MB AGP Graphics
6.8GB Ultra ATA Hard Drive
40X max/17X min CD-ROM
SoundBlaster® AudioPCI™ 64D
GCS-200 Speakers by Cambridge® SoundWorks
56K² Internet/Fax Modem
Micro-Tower Case
Microsoft® Windows® 98 Second Edition
MS® Works Suite 99 Software
1-Year Limited Warranty with
On-site Service*
1-Year gateway.net™ Internet Access¹

\$999

or as low as **\$28/mo.**
for 48 mos.^{3,4} through our
Your.)Ware™ program³

Gateway Essential 450

Intel® Pentium® III Processor 450MHz
with 512K Cache
64MB SDRAM
EV700 17" Monitor (15.9" viewable)
8MB AGP Graphics Card
6.8GB Ultra ATA Hard Drive
40X max/17X min CD-ROM
SoundBlaster AudioPCI 64D Card
GCS-200 Speakers by Cambridge SoundWorks
56K² Internet/Fax Modem
Mid-Tower Case
Microsoft Windows 98 Second Edition
MS Works Suite 99 Software
3-Year Limited Warranty with 1-Year
On-site Service*
1-Year gateway.net Internet Access¹

\$1299

or as low as **\$37/mo.**
for 48 mos.^{3,4} through our
Your.)Ware program³

All Gateway Essential PCs include:

3.5" Diskette Drive
MultiFunction Keyboard, Mouse
Year 2000 Compliance⁵

Upgrade any system:

Add a Gravis™ GamePad Pro USB – \$19
Upgrade from EV500 15" (13.9" viewable) to
EV700 17" Monitor (15.9" viewable) – \$100
Upgrade from EV700 17" (15.9" viewable) to
EV910 19" Monitor (18" viewable) – \$130
Add an Epson® Stylus® COLOR 440
Printer – \$129 (\$99 after \$30 mail-in rebate)
Add a Visioneer® One Touch™ 7600 USB
Scanner – \$149
Add a Hewlett-Packard DeskJet® 812C
Color Printer – \$199
Add a 100MB Iomega® ZIP BUILT-IN™
Internal Drive w/1 ZIP Disk – \$79
Upgrade to a DVD-ROM Drive – \$80
Upgrade to a Boston Acoustics® 3-Piece
Speaker System – \$30



Get in touch with us for more information, and for the most current pricing.

CALL
1.800.846.2065

CLICK
www.gateway.com

COME IN
Gateway Country™

Gateway's Solutions and Your:)Ware™ Program:

Choose any Gateway Essential or Gateway Performance PC, and you can customize it with the following solution packages. We test out software titles and accessories to find the best products, and package them for better value. It's a great way to save on a computer for back-to-school.

KidBuilder 2000 Preschool-Kindergarten

CTW/Sesame Street®: Toddlers Deluxe
CTW/Sesame Street:
Elmo's Preschool Deluxe
Dr. Seuss®: The Cat in the Hat
Reader Rabbit's Reading® Ages 4-6
(Plus 3 more titles)

\$99

KidBuilder 2000 Grades 1-4

The ClueFinders™: 4th Grade Adventures
Reader Rabbit's Math Ages 5-9
Arthur's™ Computer Adventure
Madeline™ Thinking Games Deluxe
(Plus 3 more titles)

\$99

KidBuilder 2000 Grades 5-8

The Oregon Trail™ 3rd Edition –
(150th Anniversary Edition)
The Princeton Review Algebra Edge
Compton's® 3D World Atlas Deluxe™
Where in the World is Carmen Sandiego?®
Deluxe Edition
(Plus 2 more titles)

\$99

Learning 2000™ Software

This massive library of multimedia educational software incorporates interactive video, audio, text and illustrations to teach kids core learning skills: reading, writing, math and algebra. It is the ultimate resource for students from ages 8-18.

\$99

limited time offer
through 9/30/99
(\$599 retail value)

Deluxe Reference Bundle

PrintMaster® Deluxe 7.0
1999 Grolier Multimedia Encyclopedia®
Deluxe Edition
Rand McNally TripMaker® Deluxe 1999 Edition
Rand McNally StreetFinder®
Deluxe 1999 Edition
Mindscape's® World Atlas & Almanac
Home Medical Advisor

\$99

Family Entertainment Package

SketchBoard™ Drawing Tablet
Hasbro Interactive™ Classic Games
Pictionary®, Boggle®, Scrabble®, Sorry!®,
Ultimate Yahtzee®, Clue®: Murder at
Boddy Mansion, The Game of Life®

\$149 (\$119 after \$30 SketchBoard
mail-in rebate)

Quicken® Suite 99

Quicken Deluxe 99
Quicken Family Lawyer
Quicken Financial Planner™

\$79

What is the Your:)Ware™ program and why is it for you? Your:)Ware is our way of helping you personalize your order in every way. First, choose a model from any of our lines of PCs. Then add on any peripherals, accessories or solution packages (like the ones above) to get exactly the right computer. Then we'll help you decide which service option and financing plan are best for you. And finally, you can trade in your Gateway™ PC toward the purchase of a new one after two years.³ The Your:)Ware program is how we get your computer to fit you perfectly.

Check out www.gateway.com and choose from over 30,000 hardware accessories and software titles.

Ad Code # 000395

*Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. **Loan financing available on approved credit through independent lender. Payments based on 48-month term and an Annual Percentage Rate as low as 14.9%. Your APR may be higher. 2% access check fee (\$2min./\$15max.); not applicable to Gateway purchases.



Gateway Performance 500

The Gateway™ Performance Line: serious computers with serious components.

Looking for a PC that's not fooling around? One with blazing processor speeds that's tricked out with the highest-end components? Bring on the Gateway Performance PCs—our line of top-tier machines. With the latest processor technology, lots of room to expand and intense multimedia prowess, they're dialed up to power-user levels.

Gateway Performance 500

Intel® Pentium® III Processor
500MHz with 512K Cache

128MB SDRAM

EV700 .28 Screen Pitch 17" Monitor
(15.9" viewable)

16MB 3Dfx® Voodoo™3
3000G AGP Graphics Card

13.6GB Ultra ATA 66 7200 RPM
Hard Drive

6X DVD-ROM Drive & MPEG-2 Decoder

SoundBlaster® AudioPCI™ 64D Card

Boston Acoustics® BA735™ Digital
Speakers w/Subwoofer

3Com® U.S. Robotics® 56K²
PCI Voice WinModem®

8-Bay Mid-Tower Case

Microsoft® Windows® 98
Second Edition

MS® Works Suite 99 Software

\$1599 or as low as **\$45/mo.**
for 48 mos.** through our
YourWare™ program†

All Gateway Performance PCs include:

3.5" Diskette Drive

MultiFunction Keyboard, Mouse

Year 2000 Compliance*

3-Year Limited Warranty with
1-Year On-site Service*

Gateway Performance 550

Intel Pentium III Processor 550MHz
with 512K Cache

128MB SDRAM

EV910 .26 Screen Pitch 19" Monitor
(18" viewable)

16MB 3Dfx Voodoo 3
3000G AGP Graphics Card

20.4GB Ultra ATA 66 7200 RPM
Hard Drive

6X DVD-ROM Drive & MPEG-2 Decoder

SoundBlaster Live!Value Card
with Digital Audio Output

Boston Acoustics BA735 Digital
Speakers w/ Subwoofer

3Com U.S. Robotics 56K²
PCI Voice WinModem

8-Bay Mid-Tower Case

Microsoft Windows 98
Second Edition

MS Works Suite 99 Software

\$1999 or as low as **\$56/mo.**
for 48 mos.** through our
YourWare program†

Upgrade any desktop PC:

Add a 100MB Iomega® ZIP BUILT-IN™
Internal Drive w/1 ZIP Disk— \$79

Upgrade from EV700 17"
(15.9" viewable) to EV910 19"
Monitor (18" viewable) - \$130

Upgrade from EV700 17"
(15.9" viewable) to VX900 19"
Monitor (18" viewable) - \$230

Upgrade from 16MB 3Dfx Voodoo 3
3000G to 32MB NVIDIA RIVA TNT2
AGP Graphics - \$70

Gateway Performance 600

Intel Pentium III Processor 600MHz
with 512K Cache

128MB SDRAM

VX900 .26 Screen Pitch 19" Monitor
(18" viewable)

32MB NVIDIA™ RIVA™ TNT2
AGP Graphics Card

20.4GB Ultra ATA 66 7200 RPM
Hard Drive

6X DVD-ROM Drive & MPEG-2 Decoder

SoundBlaster Live!Value Card
with Digital Audio Output

Boston Acoustics BA735 Digital
Speakers w/Subwoofer

3Com U.S. Robotics 56K²
PCI Voice WinModem

Intel® AnyPoint™ Home Networking

8-Bay Mid-Tower Case

Microsoft Windows 98
Second Edition

MS Works Suite 99 Software

\$2399 or as low as **\$67/mo.**
for 48 mos.** through our
YourWare program†

Upgrades continued:

Upgrade from an 8-Bay Mid-Tower
Case to a 10-Bay Tower Case - \$50

Upgrade from Boston Acoustics
BA735 Speakers to Digital
MediaTheater Speakers - \$100

Add 1-Year gateway.net™ Internet
Access¹ - \$129

Gateway Performance 600XL

Intel Pentium III Processor 600MHz
with 512K Cache

128MB SDRAM

VX900 .26 Screen Pitch 19" Monitor
(18" viewable)

32MB NVIDIA RIVA TNT2
Ultra AGP Graphics Card

TV/FM Tuner Card

27.3GB Ultra ATA 66 7200 RPM
Hard Drive

6X DVD-ROM Drive & MPEG-2 Decoder

Philips® 4X/4X/24X CD-RW
(CD-Rewritable) Drive w/ Media

SoundBlaster Live!Value Card
with Digital Audio Output

Boston Acoustics Digital
MediaTheater™ Dolby® Digital
Speakers w/Subwoofer

3Com U.S. Robotics 56K²
PCI Voice WinModem

Intel AnyPoint Home Networking

10-Bay Tower Case

Microsoft Windows 98
Second Edition

MS Office 2000
Small Business Software

\$2999 or as low as **\$84/mo.**
for 48 mos.** through our
YourWare program†

Ask us for details about software training offered at our Gateway Country® stores.



pentium®!!!

Gateway's Solutions

and Upgrades: after you pick your computer, give it something to do.

Choose any Gateway Essential or Gateway Performance PC, and you can customize it with the following solution packages:

Additional Upgrades

Digital Cameras

Olympus® D-340R Digital Camera - \$299
Epson® PhotoPC® 750Z Digital Camera - \$699

Printers

Epson Stylus® COLOR 740 - \$249
(\$199 after \$50 mail-in rebate)
Hewlett-Packard DeskJet® 882C - \$299
Hewlett-Packard DeskJet 895Cse - \$399
brother® MFC-7160c Multi-Function Center - \$499

Scanners

Hewlett-Packard ScanJet® 4200Cse - \$199
Epson Perfection™ 636U - \$229
Hewlett-Packard ScanJet 5200Cse - \$299

Miscellaneous

APC® SurgeStation Pro8T2 Surge Protector - \$39
Thrustmaster® Reflex USB™ 3-D Joystick - \$39
100MB Iomega® ZIP External USB Drive w/
1 ZIP Disk - \$139 (\$109 after \$30 mail-in rebate)
1-Year gateway.net™ Internet Access* - \$129
Philips® 4X/4X/24X CD-RW
Recordable/Rewritable Drive w/Media - \$199

DVD Adventure Suite

Star Trek™: Starfleet Academy™
Baldur's Gate™
The Journeyman Project® 3: Legacy of Time™
Descent™ Freespace: The Great War™

\$99

The Strategy Collection

Tomb Raider™ III
Thief™: The Dark Project
Railroad Tycoon II™
Tomb Raider II
Commandos: Behind Enemy Lines™
Gangsters: Organized Crime™

\$99

Intel® AnyPoint™ Home Networking Packages

Connect up to 10 PCs and share the
Internet, using a single ISP account and
one phone line.

\$69 for 1 PC card (1 PC) **\$119** for 1 PC card & 1 Parallel Adapter (2 PCs)

Web Page Creator Software

Adobe® PageMill® 3.0,
Micrografx® Webtricity™ 2

\$129

Electronic Photo Album Package

Visioneer® OneTouch™ 7600 USB Scanner
Philips CD-RW Recordable/Rewritable Drive
2 One-Time Recordable CDs, 1 Rewritable CD
CD Stomper™ Pro CD Labeler

\$339

Digital Photo Workshop

Olympus D-340R Digital Camera
CorelDRAW™ 8 Software
Epson Photo-Quality Glossy Paper

\$399

Check out www.gateway.com™ and choose from over 30,000 hardware accessories and software titles.

Get in touch with us for more information, and for the most current pricing.

CALL
1.800.846.2065

CLICK
www.gateway.com

COME IN
Gateway Country®



Ad Code # 000396

Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. **Loan financing available on approved credit through independent lender. Payments based on 48-month term and an Annual Percentage Rate as low as 14.9%. Your APR may be higher. 2% access check fee (\$2min/\$15max.); not applicable to Gateway purchases.



Gateway Solo 9300CX

Gateway™ Portable PCs: like a desktop PC, when the desk is your lap.

Solo® 2500SE

13.3" SVGA TFT Color Display
Intel® Celeron™ Processor 366MHz
32MB SDRAM (expandable to 288MB)
2MB Graphics Accelerator
with 64K Colors
Integrated 10X min/24X max
CD-ROM Drive & 3.5" Disk Drive
4GB Ultra ATA Hard Drive
NiMH Battery & AC Pack
NTSC/PAL Video Output
V.90 56K Modem
MS® Works Suite 99 Software
1-Year Limited Warranty*

\$1799 or as low as \$50/mo.
for 48 mos.** through our
YourWare™ program†

Solo 2500LS

13.3" SVGA TFT Color Display
Intel® Pentium® II Processor 333MHz
32MB SDRAM (expandable to 288MB)
2MB Graphics Accelerator
with 64K Colors
Integrated DVD-II Drive
& 3.5" Disk Drive
4GB Ultra ATA Hard Drive
12-Cell Lithium Ion Battery & AC Pack
NTSC/PAL Video Output
V.90 56K Modem
Casual Case
MS® Office 2000 Small Business
Software
1-Year Limited Warranty*

\$2299 or as low as \$64/mo.
for 48 mos.** through our
YourWare™ program†

Solo 9300CS

14.1" XGA TFT Color Display
Intel Celeron Processor 366MHz
64MB SDRAM (expandable to 288MB)
2X AGP 3-D ATI® Mobility-P
with 8MB SGRAM
Modular 4X DVD-ROM Drive
& 3.5" Diskette Drive
4GB Ultra ATA Hard Drive
12-Cell Lithium Ion Battery w/ Test
Switch, Battery Gauge & AC Pack
NTSC/PAL Video Input & Output
Dolby® Digital Output, IEEE 1394
Integrated V.90 56K Modem
Deluxe Leather Case
MS Works Suite 99 Software
1-Year Limited Warranty*

\$2499 or as low as \$70/mo.
for 48 mos.** through our
YourWare™ program†

Solo 9300CX

15" XGA TFT Color Display
Intel Pentium II Processor 400MHz
160MB SDRAM (expandable to 288MB)
2X AGP 3-D ATI Mobility-P
with 8MB SGRAM
Modular 4X DVD-ROM Drive
& 3.5 Diskette Drive
10GB Ultra ATA Hard Drive
12-Cell Lithium Ion Battery w/ Test
Switch, Battery Gauge & AC Pack
Additional 9-Cell Lithium Ion Battery
NTSC/PAL Video Input & Output
Integrated V.90 56K Modem
Deluxe Leather Case
MS Office 2000 Small Business
Software
1-Year Limited Warranty*

\$3799 or as low as \$106/mo.
for 48 mos.** through our
YourWare™ program†

All Solo Portable PCs include:

USB Port, CardBus
Zoomed Video Support
EZ S.M.A.R.T.™ Hard Drive
Monitoring Protection Service
Integrated 16-Bit Sound &
Stereo Speakers

Also included:

EZ Pad® Pointing Device
Microsoft Windows® 98 Second Edition
LapLink® V.7.5 Protection for
Windows 98
McAfee® VirusScan
Year 2000 Compliance‡

Upgrade any Portable PC:

Add an Auto/Airline Adapter - \$99
Add a Kensington® Master Lock
Security Cable - \$39
Add a Canon® BJC®-80 Color Portable
Printer - \$299
Add Deluxe Reference Bundle
Software - \$99
Add an APC® PNOTE PRO Surge
Protector - \$29

CALL
1.800.846.2065

CLICK
www.gateway.com

COME IN
Gateway Country®

Toll Free from Mexico 95-888-888-0074 Toll Free from Puerto Rico 800-846-3613 Toll Free from Canada 800-846-3609

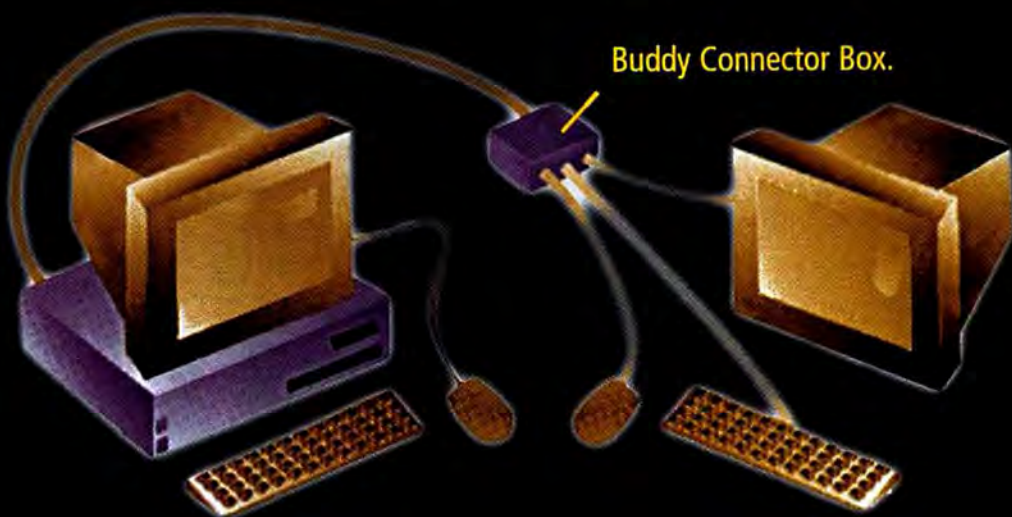
Gateway™
Connect with us.

Ad Code # 000396

© 1999 Gateway, Inc. All rights reserved. Gateway, gateway.com, Solo, the Gateway stylized logo, Gateway Country, EZ Pad and YourWare are trademarks or registered trademarks of Gateway, Inc. The Intel Inside Logo, Intel and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. All other brands and product names are trademarks or registered trademarks of their respective companies. Many products are engineered to Gateway specifications, which vary from retail versions. Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes. *Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. **Loan financing available on approved credit through independent lender. Payments based on 48-month term and an Annual Percentage Rate as low as 14.9%. Your APR may be higher. 2% access check fee (\$2min/\$15max.); not applicable to Gateway purchases. 1. No monthly fee first year from delivery. Local access \$1.50/hour over 150 hours. Must register within 30 days. Local access numbers not available in all areas. You are responsible for any applicable local/long-distance charges. Toll-free access \$3.95/hour. 2. Maximum data transfer rate dependent upon variables, including particular modems with which you are communicating, telephone lines, communications software and communications protocols. 3. Gateway purchases will qualify for the YourWare program by: 1) financing through a Gateway authorized lender; 2) purchasing an additional software or solution bundle; or 3) purchasing support package upgrades. Trade-in available between the first day of the 24th month and the last day of the 49th month after delivery of YourWare product. Gateway will give you the average wholesale value for the product in good condition using the then current Orion Blue Book or similar commercially reasonable industry standard as determined in Gateway's sole discretion. Other terms and conditions apply. Call for details. 4. All Gateway Intel processor-based systems are qualified to carry the "NSTL Hardware Tested Year 2000 Compliant" logo because they have successfully completed the NSTL YMARK2000 test. These systems have also passed the Microsoft Millennium Year 2000 test suite. Gateway cannot be responsible for third party software that improperly sets, resets, or calculates dates. These issues are not related to the hardware and operating system, and cannot be corrected by Gateway. Complete details on Gateway's Year 2000 support can be found at www.gateway.com/year2000.

\$ The World's First (and Only) \$149 PC!

Buddy lets you create a second, fully functioning PC for a mere fraction of the cost. Just add a monitor, keyboard and mouse, and presto – another PC. With Buddy, two people can work at the same time, in any application, from up to 50 feet away. Share a printer. Or ever surf the Internet separately using one phone line and one modem. All without slowing down your PC. It's the most affordable way ever to add PCs. So call today. Most of your new PC may already be on your desk.



Buddy Connector Box.

Setup is as easy as one-two-three:

1. Insert the Buddy card in the PC.
2. Run the 15 foot cable from the card to the Buddy Connector Box.
3. Connect the 2nd user's monitor, keyboard and mouse to the Buddy Connector Box.

Both Users Can Independently Use	First PC	2nd PC
Word Processor	✓	✓
Spreadsheet	✓	✓
E-mail	✓	✓
Database Application	✓	✓
Graphics File	✓	✓
Game	✓	✓
CD-ROM	✓	✓
Modem	✓	✓
Internet	✓	✓
Sound not available on Second PC.		



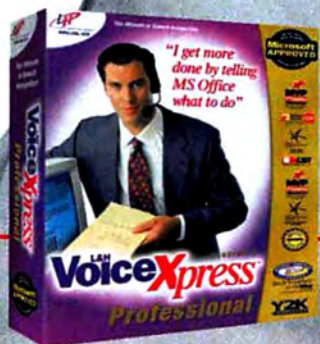
Also Available at:



BUY DIRECT: (TOLL FREE) **1-888-406-8965**
or visit our web site at www.buddy.com



TEACH YOUR COM
FLUENT YOU IN



*L&H Voice Xpress speaker enrollment time; †L&H Voice Xpress Version 4 - August 1999; ‡L&H Voice Xpress Version 4 - September 1999; §L&H Voice Xpress Version 2 - May 1998

COMPUTER TO SPEAK IN JUST 5 MINUTES.

L&H Voice Xpress™ Version 4 is the first speech recognition software that understands your voice and speaking style in just 5 minutes,* and gets you from installation to dictation faster than ever before. You'll be creating and formatting letters, reports, and



e-mails by voice in no time flat. Here's why you'll want it in no time flat:

"The bottom line is that for speech recognition, you are better off with Voice Xpress" - Windows Magazine¹

"Voice Xpress is an excellent choice if you need both advanced voice ~ activation support and dictation." - Laptop Buyer's Guide and Handbook²

"...the easiest voice recognition product we've used." - PC Magazine³

Check out L&H Voice Xpress at any leading software retailer, and ask about our 30-day money-back guarantee. To learn more about our impressive integration with Microsoft® Office 2000 and patented Natural Language Technology™ or to purchase online, visit us at WWW.LHSL.COM/FLUENTYOU/PCM. Then teach your PC to speak your language.



Lernout & Hauspie™
The Speech and Language Company

Just when it looked like Microsoft had crushed all comers, Linux and others are fighting for your desktop. But the question is, can they win?

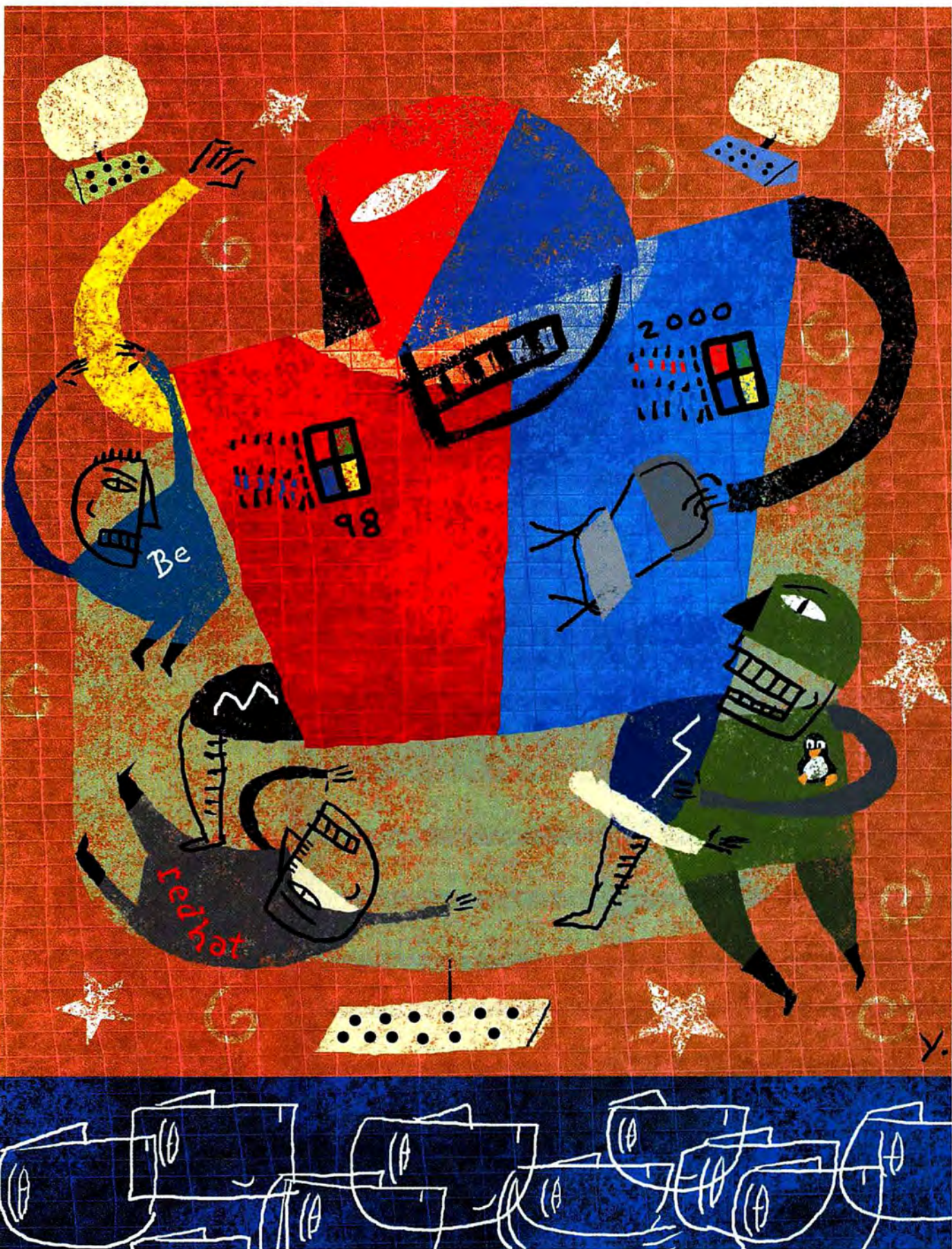
WINDOWS versus WINDOWS versus THE WORLD

BY HARRY McCracken AND SCOTT SPANBAUER

WELCOME TO THE WWWF—the World Windows Wrestling Federation. Tonight's main event (just 30 bucks on Pay-Per-View) is a steel-cage death match pitting Microsoft's devastatingly dominant family of Windows operating systems (cue fog machine and light show) against a couple of pencil-neck patsies from the land of Linux and an even meeker-looking challenger from Be (a thunderous roar erupts from the crowd). ►

I L L U S T R A T I O N S B Y J A M E S Y A N G

125 WINDOWS 2000 **130** WINDOWS 98 SE **141** OPENLINUX 2.2 VS. RED HAT LINUX 6 **152** BeOS 4.5



This could get ugly. Fighting the big guy ain't like it was when Davey pulled a reverse headlock on Goliath. Just ask the wounded warriors who previously stepped into the ring with Microsoft only to find themselves flung several rows deep into the crowd. A few system utilities are draped over the seats in row 9 (*hasta la vista*, Stacker); OS/2 is actually under row 6; and look, Netscape landed in America Online's popcorn.

But those crazy screaming spectators in their WWWF T-shirts can expect a battle royal this time around. The Windows camp is fragmented, with Windows 98 pulling in one direction and Windows 2000 tugging in another. With users pausing to figure out which Windows is which, it's a perfect time for an alternative operating system to get in a few good licks.

As most of you know, the past year has seen a formidable challenger enter the fray. Yes, Linux, the freely distributed

Unix spin-off, has been around for years, but only recently did companies like Caldera and Red Hat put a user-friendly interface on it to give it mass appeal. And later this year, software heavyweight Corel will release its own flavor of Linux.

To a lesser extent, the upstart BeOS, which previously courted multimedia authors, has begun making noise too. Back in February, Be's CEO went so far as to offer the BeOS free to any computer company that installed it as the default OS. (To date, just a few companies, including AST, IDot, and Microworkz, have agreed to load BeOS.)

MICROSOFT FIGHTS BACK

NOT ONE TO shy from a challenge, Microsoft is readying its biggest launch since Windows 95. Windows 2000 (formerly known as Windows NT 5) is the most highly anticipated piece of work to come out of Redmond since Bill Gates committed his antitrust testimony to videotape. And the OS should be worth the

wait: Prerelease versions of Windows 2000 seem to combine the best of Windows NT and Windows 95/98.

But Windows 98 isn't dead yet. Microsoft breathed new life into the popular operating system with the June release of Windows 98 Second Edition. Not that the OS needed CPR, but Second Edition pulls together some bug fixes, the latest Internet Explorer browser, and a few other key features.

So what OS should you have on your desktop? To answer that question and a host of others, we've taken a critical look at five operating systems vying for room on your hard disk: the latest prerelease version of Windows 2000, Windows 98 Second Edition, Caldera OpenLinux 2.2, Red Hat Linux 6, and BeOS 4.5. After using the operating systems for a month, we have a lot to say in the following pages. But here's the skinny:

■ **Windows 2000** is a formidable operating system, combining the security features of Windows NT with much of the compatibility of Windows 98. It may be Microsoft's best since Windows 95.

■ **Windows 98 Second Edition** is a minimal upgrade to Windows 98, with bug fixes, new drivers, and better notebook support. But if it weren't for a nice new feature called Internet Connection Sharing, we might ignore it completely.

■ **Linux** remains an operating system for programmer types, though it's come a long way toward being usable by all. Thanks to its stability and power, it will continue to be an attractive OS alternative. If we had to use Linux today, we'd pick **Caldera OpenLinux 2.2**. It's easier to use than the better-known **Red Hat Linux 6**.

■ **BeOS 4.5** is fast and stable, and oh-so-easy to use. But few useful programs have been written for it, and hardware compatibility is spotty.

WHICH OS IS RIGHT FOR YOU?

DIFFERENT STROKES for different folks. These days, your choices are broader than they've been in quite a while. But odds are you'll still end up selecting some version of Windows.

If you:	Then choose:	But be aware:
Use Windows 95 and are basically happy with it...	Windows 95	New devices such as USB equipment and DVD-ROM drives aren't fully supported.
Use Windows 98's first edition and are basically happy with it...	Windows 98 first edition	Bug fixes and new drivers are available as free downloads at Microsoft's Web site.
Run Windows 9x on several PCs and want to share a Net connection...	Windows 98 Second Edition	There's not much to this upgrade, and the OS integrates the buggy Internet Explorer 5.
Run Windows NT 4 currently...	Windows 2000	Probably won't be cheap (but will be worth it).
Want a stable version of Windows and keep sensitive info on your systems...	Windows 2000	Runs best with 64MB or more of RAM and is still not compatible with all hardware and software.
Need a powerful, reliable operating system for running a network or programming software...	OpenLinux 2.2	Setting up and using Linux can still be a challenge. Not all hardware is compatible, and business software choice is limited.
Develop multimedia applications and need a fast, PC-based OS...	BeOS 4.5	Hardware and software support is even spottier than you'll get with Linux.

WINDOWS 2000 GETS FRIENDLY

1 Windows 2000's system administration tools are centralized in the Control Panel, à la Windows 9x.

2 The nifty Device Manager finally arrives in Windows 2000, helping to make configuring hardware easy. Plug and Play at last!

3 Justice Department be damned: Windows 2000 integrates Internet Explorer 5.

4 Unlike Windows NT 4, Windows 2000 can update itself.

5 Menus and sub-menus are more conveniently arranged in Win 2000 than in NT.

6 Windows 2000 supports newer and more varied hardware devices (but users of ancient hardware may still be out of luck).



LOOK FAMILIAR? It should. The new Windows 2000 incorporates a lot of what makes Windows 98 so easy to work with.

These days, bottom-line advice isn't enough to help you pick an operating system. You need more information. For instance, factors such as the OS you currently use and what you need your operating system to do will affect your ultimate decision (see "Which OS Is Right for You?" on page 124). If you plan to get your next operating system via a new computer purchase, there'll be plenty of Windows to go around.

THE ROAD LESS TRAVELED

BUT WHAT IF YOU'RE interested in an alternate operating system? Well, you'll probably have to load it yourself because few computer vendors will preload it on a new system (see "Linux Spoken Here" page 148). And before you begin changing operating systems, you should be fully prepared, whether you're moving to Windows 2000 (see "Getting Ready for

Windows 2000," page 129) or switching to Linux (see "Clearing the Decks for Linux," page 142).

You don't have to sell your soul to use an OS other than Windows 95/98. Windows 2000, Caldera OpenLinux, Red Hat Linux, and BeOS can all be set up to run alongside Windows 9x on a dual-boot PC. It's an option more and more users are trying. So if you want to try Linux because it doesn't crash as often as Windows 98, you can put it in a separate partition on your hard drive and boot it up when you need to do important work. When you feel like playing Windows games, you can boot up your PC in Windows 9x.

Picking an OS is harder than it used to be. There's a lot to take in, and what one person chooses, another may not like—just like in wrestling: One fan's aging grappler is another's governor.

Windows 2000

The Best of Both Windows?

PREVIOUS EDITIONS of Windows NT could never shake the status of nerdy stepbrother to the more glamorous Windows 95 and 98. But the tables are turning. If Microsoft has its way, the desktop version of NT, now called Windows 2000 Professional, will soon become the default operating system for business computers everywhere.

As we conducted our review, Microsoft was shipping the first Release Candidate to beta testers for scrutiny. With a second Release Candidate due out by the time you read this, the long-delayed product may hit store shelves before ►

November—then again, it may not. As you may recall, Windows 95 came out in 1995 and Windows 98 in 1998.

Should you buy Windows 2000? It depends—mostly on whether you're willing to cough up \$200 or more for the benefits of the new OS. Who should consider loosening their purse strings? First, Windows NT 4 users, because Windows 2000 is a clearly superior product (assuming no crippling bugs are found before the official release). Windows 9x users who want a more stable OS and need to ensure their data's security should also consider Windows 2000.

PAY TO PLAY

NT HAS ALWAYS been the industrial-strength version of Windows. Version 4 had better security and stability, but it also had limited hardware support and an arcane file directory system that was incompatible with the one used by Windows 95/98. What's more, it was a pain to install and set up. Win 2K changes all that.

Windows 2000's main strength is that it combines Windows NT file, user account, and log-in security with Windows 98's hardware- and software-friendliness. It's not as backward compatible as Windows 95/98, but if your hardware and software are reasonably contemporary, they should work well with Windows 2000. And if you've strug-

gled to configure Windows NT 4 on your portable system, Windows 2000's new-found plug-and-play features and power management support will wow you.

But Windows 2000 isn't for everyone. It requires at least a fast Pentium or Pentium II processor (166 MHz or higher), and don't even think of running it in less than 32MB of system RAM. By comparison, Windows 98 and even Windows NT 4 run on slower Pentiums stoked with as little as 16MB of RAM. Windows 2000 is also likely to be more expensive than Windows 98 (Microsoft hadn't set pricing at press time). Windows NT Workstation 4's street price hovers at around \$260, with upgrade pricing about half that.

Details of the user interface and included utilities will continue to evolve as Windows 2000 edges toward its ship date, but Microsoft says Beta 3—the most recent version we've tested fully—contains all the final product's features. Though Beta 3 sports its share of buglets and missing drivers, it's a good operating system as is, and probably as stable as shipping versions of Windows 98.

MUTUALLY COMPATIBLE

IF YOU'VE installed Windows NT before (or heard about other people's installation nightmares), you know about having to cajole the OS into recognizing

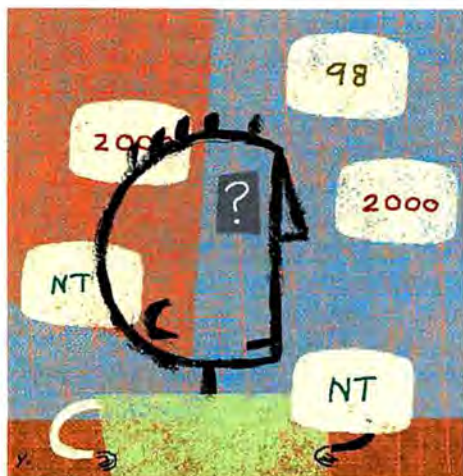
your hardware. Well, forget all that. Like Windows 95/98, Windows 2000 scans your system during installation for installed hardware. And unlike its NT predecessors, Windows 2000 can pick up your existing Windows 95/98 installed applications and settings. Windows 2000 also lets you create a dual-boot configuration with Windows 95/98 or another operating system.

NOW ENTERING FAT CITY

WINDOWS 2000 overcomes another NT limitation: It reads from, writes to, and boots from drives partitioned with Windows 98's efficient FAT32 file system. That's good, since Windows 2000's 500MB basic installation may soon fill up the drive you install it on. If you need top security, you'll appreciate that Windows 2000's native NTFS 5 file system lets you restrict access to files or entire folders, and encrypt them with a mouse click—keeping anyone without your log-on password from reading them.

Despite this good news, be prepared for some unpleasant compatibility surprises when upgrading from Windows 98. Microsoft promises Windows 2000 will support many more apps and peripherals than previous versions of NT, but old or obscure products may not make the compatibility list. System utilities, graphics card control panels, and other programs that communicate with hardware are the types of software likeliest to fail under Windows 2000. Simi-

ONE WORLD, TOO MANY WINDOWS



WHEN WINDOWS 98 hit the shelves last year, Microsoft promised that it was the last Windows 9x we'd ever see—no more DOS-based Windows. Going forward, Windows 2000 would be the only OS we'd have to deal with.

But here we are, with Windows 98 Second Edition out on the street, Windows 2000 on the way, and yet another Windows 9x species in the pipe. The new OS, code-named Millennium, will be based on the same underlying code as Windows 95/98, but according to Microsoft will be easier than ever to use.

The company says Millennium will be the first release in its Easy PC joint project with Intel. The goal is to make the Windows PC less complex, while using USB, FireWire, and Device Bay for adding peripherals. If all goes as planned, the new OS will enhance consumers' use of home networking, digital media, and the Web.

Beyond Microsoft's sketchy claims, little is known about Millennium. As we went to press, the first pre-beta test version was going out to hardware makers and software developers. What Microsoft will call the new

larly, games that access hardware directly probably won't fare well. Newer games should run as well under Windows 2000 as under Windows 98, provided they're written to use Microsoft's DirectX programming interface.

As for the hardware itself, you're likely to have better luck. Windows 2000 support scads of peripherals. In fact, the list of Windows 2000-compatible hardware devices is 177 pages long (we tried to print it without realizing what we were in for). To check whether Windows 2000 supports a particular device, see the latest Hardware Compatibility List at www.microsoft.com/hcl/default.asp. For software compatibility, check out www.microsoft.com/windows/professional/deploy/compatible.

FAMILIAR FACE

IF YOU KNOW your way around Windows 98, you'll have no trouble adjusting to Windows 2000—the surface differences between the two systems' interfaces are mostly minor. If you've cursed NT 4's seemingly arbitrary design choices, Windows 2000 should delight you. However, Windows 2000 is more powerful than Windows 98 and more complicated to configure. If you intend to set up several systems, be prepared to learn the ins and outs of creating and managing user accounts, checking error log files, and managing services. If you take the time to bone up on these Windows 2000 features, you'll be rewarded with a



HOW DO YOU OPERATE?

HAVE OS, WILL TRAVEL. That's the motto of Ed Wilts, a systems manager from Mounds View, Minnesota. Depending on where he is and what he's doing, Wilts uses one of several different OSs. At the office, it's Windows NT 4 (at least until Windows 2000 comes out). At home, he has Windows 95 on two systems (Windows 98 was too unstable, he says) and Red Hat Linux 6 on a third.

"I'm not one of those anti-Microsoft users, because Microsoft has developed some good products in the past," says Wilts of his decision to try Linux. "I was looking for an operating system that let me work with some development tools and that could act as a firewall when I installed a high-speed Internet connection."

OPERATING SYSTEMS



Windows 95



Windows NT 4



Red Hat Linux 6

ED WILTS

system that keeps your data safe from prying eyes and buggy applications.

Though they look similar at first glance, Windows 95/98 and NT diverge in three main interface areas: hardware configuration, system and account ad-

ministration, and dial-up networking. Windows 2000 moves many of the tools strewn across NT 4 to the Control Panel, an obvious location that reduces clutter in the Start menu. A new icon-based interface for network and dial-up ►

operating system is anyone's guess, considering that *Windows 2000* is taken. But apparently the Windows 9x train really

does stop after Millennium. The next major Windows release aimed at consumers, currently known as Neptune, will

be based on Windows NT/2000 code. Microsoft has not yet revealed its projected release date. —Glenn McDonald

OPERATING SYSTEM	The scoop
Windows 98 Second Edition	Came out in June as a modest upgrade to Windows 98. Nothing revolutionary, but it has some cool features like Internet Connection Sharing. You also get bug fixes, additional drivers, and better notebook support.
Windows 2000	Windows NT 5 with a new name. It should be out soon, but keep in mind that Windows 95 came out in 1995 and Windows 98 in 1998. Friendlier interface and improved hardware support should make it a killer.
Millennium, aka Consumer Windows in 2000	Here's where the confusion sets in. Millennium will be based on Windows 9x and is due out in the second half of 2000. Microsoft says it will be simpler to use than current Win 9x OSs, with a focus on home networking.
Neptune, aka Windows 2000 for Consumers	Finally, NT and 9x may come together in an OS based on Windows 2000. At least that's what Microsoft says. It probably won't appear until 2001 or later. As for what will be in it, only Bill Gates knows for sure.

connections improves on both Windows NT's and Windows 98's Dial-Up Networking dialog boxes, offering wizards for creating various connections. And instead of forcing you to dig through multiple menu levels to open the dialog box, Windows 2000 conveniently places it right on the Settings submenu. Oddly, however, the oft-used shortcut to Windows Explorer is now one level deeper (under Start•Programs•Accessories).

Configuring and troubleshooting hardware in Windows NT are scattershot tasks. Disk drives are managed in one place, IRQs in another, and modems somewhere else. Windows 2000 brings them all together in the new Device Manager window. Like Windows 95/98's Device Manager, Windows 2000's flags failed peripherals and lets you add or remove them, change drivers, and adjust

configuration settings all in one location.

Though Microsoft touts its extensive usability research, one of the most noticeable interface changes in Windows 2000 may confound users. Like Office 2000, Windows 2000 displays only the most frequently used commands, hiding rarely accessed entries by default. The logic behind these telescoping menus is that removing commands you seldom need will make the other commands quicker and easier to use. Unfortunately, hiding infrequently selected features makes them just that much tougher to find when you do need them—assuming you remember that they exist at all. Fortunately, you can turn the feature off.

A MOVABLE FEAT

IF YOU use a laptop, you probably run Windows 95/98 on it. Aside from some stumbles with certain early versions of ACPI power man-

agement, Windows 98 does a spectacular job of supporting most portables, including the latest DVD-equipped models. Windows NT 4 lacks Windows 98's plug-and-play hardware detection and configuration system, which makes using PC Card and docking devices a pain. And forget about using the computer's USB, infrared, and DVD devices with NT 4. Even Linux (which generally lags behind Windows in hardware support) is more laptop-friendly than NT 4.

Windows 2000 finally puts an NT-based operating system on the road. Like Windows 98, it supports both the ACPI power-management scheme used on newer systems and the APM spec that governs older laptops. In addition, it can slip your system into a powered-off hibernation mode that saves the current state of your system, complete with open applications and files. Windows 2000's PC Card support rivals Windows 98's, with one major exception—before eject-

LIVING *WITHOUT* WINDOWS



AUTHOR SCOTT SPANBAUER could not shake his ties to Microsoft.

MOST PC USERS can't imagine a world without Microsoft software. Others can only dream of it. What if Windows had never been born? To find out, I decided to abandon all flavors of the monster operating system on my several

view in this article: Caldera OpenLinux 2.2 and Red Hat Linux 6. My test systems included a home-built 486/66, an aging Pentium-75 Toshiba laptop, a Pentium-166 Dell Dimension desktop, and a Pentium III-500 Micron. All were connected by ethernet, and one sys-

tem was linked to the Internet by ISDN. After two weeks of installing, reinstalling, configuring, tweaking, and swearing, I had the basics up and running. Using my PCs' CD-ROM drives and printers required a little finesse, but nothing too difficult. For a week, I created and edited files using StarDivision's free StarOffice 5.1 suite (with word processor, spreadsheet, and more), browsed the Web and sent mail with Netscape Communicator, and even played Quake II. But I couldn't quite cut the umbilical cord to Redmond.

In Windows, I use Microsoft's Outlook mail, contact, and calendar program. I love Outlook, but Microsoft makes exporting information from Outlook to other programs difficult or impossible. I was able to get along by setting Outlook and the Linux version of Netscape Messenger to leave my mail on the server. But because I couldn't import the archived messages I rely on for my work into my Linux system, I occasionally had to boot Windows 98.

Many of Linux's free apps lag behind

tem was linked to the Internet by ISDN.

After two weeks of installing, reinstalling, configuring, tweaking, and swearing, I had the basics up and running. Using my PCs' CD-ROM drives and printers required a little finesse, but nothing too difficult.

For a week, I created and edited files using StarDivision's free StarOffice 5.1 suite (with word processor, spreadsheet, and more), browsed the Web and sent mail with Netscape Communicator, and even played Quake II. But I couldn't quite cut the umbilical cord to Redmond.

In Windows, I use Microsoft's Outlook mail, contact, and calendar program. I love Outlook, but Microsoft makes exporting information from Outlook to other programs difficult or impossible. I was able to get along by setting Outlook and the Linux version of Netscape Messenger to leave my mail on the server. But because I couldn't import the archived messages I rely on for my work into my Linux system, I occasionally had to boot Windows 98.

ing a card, you must manually disable it using a utility that runs in the taskbar's system tray. If you forget to do this—and you will, repeatedly—Windows 2000 will complain that ejecting running cards causes system instability. Let's hope that before the operating system ships, Microsoft realizes this silly inconvenience will drive users nuts.

CRASH ON DELIVERY

THE BIG QUESTION IS, when will the final version of Windows 2000 ship? Beta 3 performed smoothly and was stable. But Release Candidate 1 users posting to Microsoft's newsgroup, microsoft.public.win2000.beta, report fresh problems. New bugs include installs that die midway, dramatic increases in memory usage, long boot times, and the inability to boot up at all, possibly due to conflicts with certain BIOSs. Other users report trouble setting up the OS in systems equipped with certain PC Card network

adapters and note that support for the 3Com Winmodem has vanished.

By the time you read this, the company will probably have announced a ship date or another delay. Though impatient upgraders will bemoan the latter, most of us are probably better off waiting while Microsoft irons out the wrinkles. If we're lucky, the final version will ship with an updated IE 5 rather than the buggy version that's bundled currently.

Even if Microsoft delivers a compatible, stable Win 2000 this fall, you'll have to ask yourself if you need it. Win 95/98 provides many features small-business and home users require, at a lower price, with less onerous demands. Meanwhile, Linux is getting dangerously close to providing most of the capabilities Windows users need, for practically nothing.

But if you think you might want to upgrade to Windows 2000, you probably won't be disappointed. This nerdy stepbrother is ready for the prom. ►

Windows apps by a generation or two. For many users, that's fine.

I'm a writer, so the ability to edit Microsoft Word files—the de facto standard in my business—was key. First, I had to network my Linux PC to the Windows machine where my files reside, using the powerful but arcane Samba software. Despite a plethora of help files and Web sites devoted to the subject, deciphering Samba's various configuration files, share-mounting commands, and permissions settings took a while. Of course, now I could do it all in my sleep.

I WANT MY MS WORD

LIKE MOST people who use Word every day, I don't need 80 percent of it—but the 20 percent I do use, I rely on daily. Word users won't have trouble switching to StarOffice: It opens existing files and saves them without a hitch, and its commands and menu layout mimic Word's. But it's no Word. I miss many little things that simplify editing, like the ability to

select text, then drag and drop it elsewhere in the document. And though I didn't care for it much at first, I've grown accustomed to the way Word underscores misspelled words and tracks revisions. StarOffice supports revision marks, but not nearly as well as Word.

On the other hand, using StarOffice's spreadsheet application suited me fine—probably because I don't use a spreadsheet for anything beyond organizing data into cells and adding up some sums. If I needed to, I could get along with StarOffice, but I'm more productive using Word and Excel.

Many of Linux's bundled apps follow this same model: Though surprisingly capable, considering that they're free, they lag behind Windows applications by a generation or two. For many users, that's probably fine. Who knows, maybe Microsoft will release a Linux version of Office. But I doubt it. —Scott Spanbauer

Getting Ready for Windows 2000



MICROSOFT HAS made it easier to go from Windows 95/98 to Windows 2000 than it was to move from any previous Windows to Win NT. But don't expect to pop in a Windows 2000 CD and start reaping its benefits right away.

[1] Check your software. As hard as Microsoft has tried to make most software work flawlessly under Windows 2000, not all applications are compatible. Check for your favorite apps at www.microsoft.com/windows/professional/deploy/compatible.

[2] Check your hardware. As software goes, so goes hardware. More peripherals than ever claim compatibility with Windows 2000. Some are just compatible; others are certified by Microsoft itself. Look for your hardware at www.microsoft.com/hcl.

[3] Double-check. When we installed Windows 2000 Beta 3 over Win 98, a screen listed incompatible items. If that screen is included in the final shipping product, print it out, cancel out of installation, and remove or replace troublemakers before starting over.

[4] Dual-boot. If you have incompatible software or hardware that you can't do without, choose to set up a dual-boot system during Windows 2000 installation. That way your PC can run Windows 95/98 or 2000, depending on the tasks you need to perform.

[5] Consider waiting. If Windows 2000 turns out to be anything like other Windows products, it will have bugs and other issues. Microsoft will probably iron those out in a few months, but you may want to wait until it does before upgrading entire departments.

windows 98

second edition

Hold On a Sec

AT THE RIPE OLD AGE of 1, Windows 98 was hardly in need of an upgrade. Though it clashed with some laptop power management schemes when it debuted, Windows 98's first edition was basically stable and easy to configure and use, and supported just about any contemporary software or hardware you could throw at it.

Nevertheless, Microsoft has introduced Windows 98 Second Edition, adorned with bug fixes, the latest version of Internet Explorer, updated USB support and drivers, and Internet Connection Sharing, a real advance that allows other computers on your local network to access the Internet through one Windows 98 Second Edition system.

Windows 98 SE is quickly becoming the de facto standard on new PCs, and you can buy it off the shelf for about \$180 (\$95 if you're upgrading from Windows 3.x or 95). But it appears to be little more than a refresh aimed at revitalizing interest in Windows 98 until a new consumer-oriented OS comes out next year (see "One World, Too Many Windows," page 126). If you currently own Win 98 and want a CD-ROM that supplies the new features, you can get it for a mere \$20. On the other hand, if you want only the Windows 98 fixes, you can download them free from Microsoft's Web site at www.microsoft.com/windows98/highlights/wing8update.asp.

We find it hard to make a compelling case for Windows 98 users to pay \$20 for the new features in Win 98 SE. And if you currently run Windows 95 with OSR2, you already have a strong, stable version of Windows—so why pay money to mess with a good thing? Though we're not drooling to put Win 98 SE on

our hard drives, there are conditions under which you might consider it:

- You currently use Windows 98, and you need ICS in order to share a Net connection among several systems.
- You currently use Windows 95 or 98 on a notebook, and you want the most compatible OS you can get.
- You currently use Windows 95, and you want ICS plus support for newer hardware such as USB peripherals and DVD-ROM drives.

THE IE 5 DILEMMA

WHICHEVER camp you fall into, tread carefully. Just as Internet Explorer 4 ships as an integral part of Windows 98, Internet Explorer 5 is Windows 98 Second Edition's built-in browser—and that's a problem. IE 5 is a great browser, but like nearly every major Microsoft product update, it won't be stable until a service pack appears. Every day, readers of *PC World's* Bugs and Fixes column report new frustrations with IE 5 or its

mail and news reader, Outlook Express.

When we made the upgrade from a fairly stable and reliable Windows 98 with IE 4 to Windows 98 SE with IE 5 on a Dell Pentium-166 system, we encountered instabilities that no user should have to put up with, including resource leaks and dial-up connections that gradually slowed to a crawl. We would switch back to Windows 98 with IE 4 and Service Pack 2 immediately—if we could figure out a way to do it smoothly. In classic Microsoft data-kidnapping fashion, Outlook Express 5 stores e-mail messages in a different file format than version 4, and (you guessed it) it offers no option for exporting those messages back into Outlook Express 4. ▶

WINDOWS 98, TAKE TWO

ON THE SURFACE, Windows 98 Second Edition is much like the first incarnation.



1 Having separate log-ins for different users is nice, but far from secure.

2 No change from Windows 98: The operating system remains tightly integrated with Internet Explorer—in this case the notoriously buggy IE 5.

3 Advanced power management tools make Windows 98 SE more laptop-friendly than Windows 98.

4 If you're on a small network, you can use Internet Connection Sharing to allow all linked PCs to use a single line to the Net.



More than 100 industry awards and top product rankings.

For information on our notebook, desktop, server and handheld systems,
contact us toll-free at 877 667-2720, or www.nec-computers.com.

RELAX, IT'S WINDOWS 98

ON THE UPSIDE, Windows 98 SE maintains most of what has made its predecessors successful. Compared to Windows NT or Linux, Windows 98 SE is simple to install. And it's generally hard (though not impossible) to screw up SE to the point where it won't boot. But the operating system's biggest strength is its compatibility with your PC's hardware and software. If your hardware was manufactured within the last five years, Windows 98 SE probably ships with a driver for it.

On modern systems, Windows 98 SE also supports the latest 3D accelerators, USB devices, IEEE 1394, ISDN adapters—you name it. It's also the most laptop-friendly OS around, supporting all sizes and flavors of PC Card devices, infrared ports, docking stations, and both APM and ACPI power management specifications. Windows 98 SE also adds support for Device Bay peripherals. In comparison, Windows NT is a poor choice for portables because it lacks power management and plug-and-play support. Windows 2000 fixes that, but it probably won't work as smoothly as Windows 98 SE when it finally ships.

Windows 98 SE will run most Windows 3.x and DOS programs you throw at it—a claim Windows NT 4 can't generally make. Microsoft claims that Windows 2000 will support more hardware and software than NT 4, but don't expect additional legacy drivers and compatibility. And though Windows 2000 will adequately run games written to Microsoft's DirectX multimedia interface, it will be playing catch-up with Windows 98 for a while yet.

FREAK OUT, IT'S WINDOWS 98

ON THE OTHER HAND, if you depend on your computer to be up and running at all times, Windows 98 SE (like Windows 9x before it) may not be the best choice. The operating system itself is stable, but in exchange for all the software and hardware compatibility, Windows 98 SE continues the tradition of looking the other way when applications cut corners, make sloppy mistakes

with system memory, or manipulate hardware directly, bypassing the operating system. As a result, programs that contain serious bugs can do more damage when they crash than is possible under other operating systems. Windows 98 SE is also less rigorous about keeping applications separate, leading to more system-locking conflicts.

You can overcome Windows 98 SE's laissez-faire approach by using common sense. Stability problems usually start when you install system utilities, crash protectors, antivirus programs, not-ready-for-prime-time Web browsers, or buggy drivers that worm their way deep into the system, eventually hosing it. To keep your OS running well, minimize the programs and peripherals you use. Avoid "trying out" too much software on your primary PC, and eschew utilities that run automatically in the background. One software setup that has

worked well for us: Office 97 Service Release 2, IE 4 with Service Pack 2, Netscape Communicator 4.51, Adobe Acrobat 3.01, WinZip 6.3, and as little else loaded as possible.

Windows 98 SE and its predecessors have another drawback that may or may not affect you: relatively weak security. Because its roots lie in the MS-DOS operating system, Windows 9x's log-in security is feeble compared to that of full-strength operating systems like Windows NT and Linux. Though you can create user log-in IDs under Windows 9x, anyone can log in with full privileges by default. Third-party utilities and Microsoft's own System Policy Editor let you tighten security, but a determined break-in artist can find a way around most of these. And Windows 98's and 98 SE's FAT16 and FAT32 file systems don't provide for selective file and folder access based on the user ID. ▶

PHOTOGRAPH: KATHERINE LAMBERT

OPERATING SYSTEMS



BeOS



Windows 98

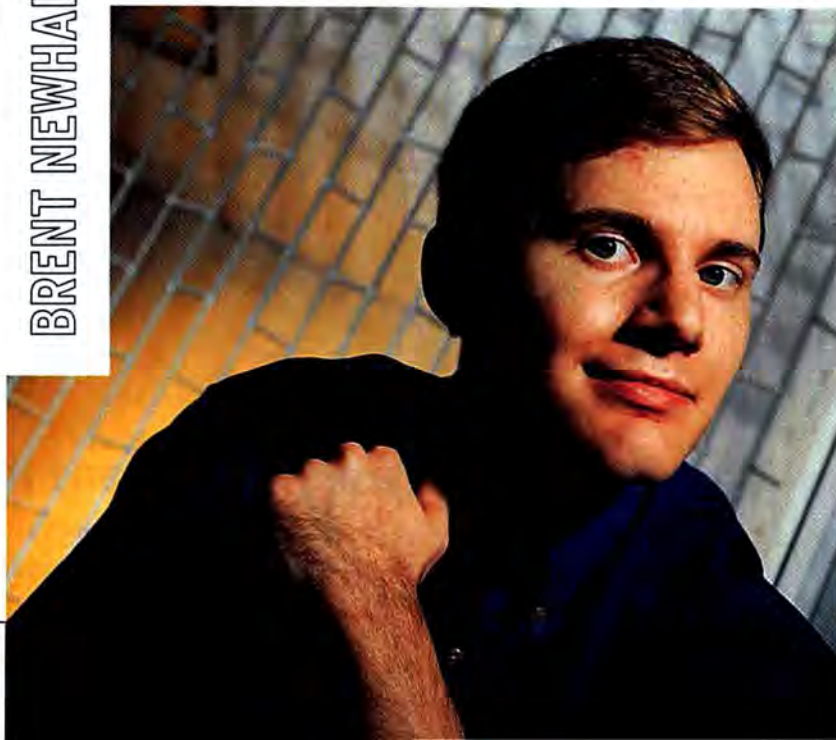
HOW DO YOU OPERATE?

ABOUT SIX MONTHS AGO, software engineer Brent Newhall of Great Falls, Virginia, added BeOS to his Windows 98 PC, and he's been using it as his primary operating system ever since. He finds it faster, more stable, and easier to use than Windows.

"I've had enough programs open to slow my BeOS system to a crawl and [still] could not crash the thing," he says. "And configuration files are easy to find and update."

Though he hasn't had any major problems with incompatible hardware, he admits that living with BeOS isn't as simple as living with Windows 98, because of limited driver support. Mostly, Newhall keeps using BeOS because it's "just plain fun." This may be the first time someone has told us an operating system is fun.

BRENT NEWHALL



A Powerful Business PC With A Footprint About The Size Of A Footprint.

Introducing the PowerMate® 2000 Microdesktop.

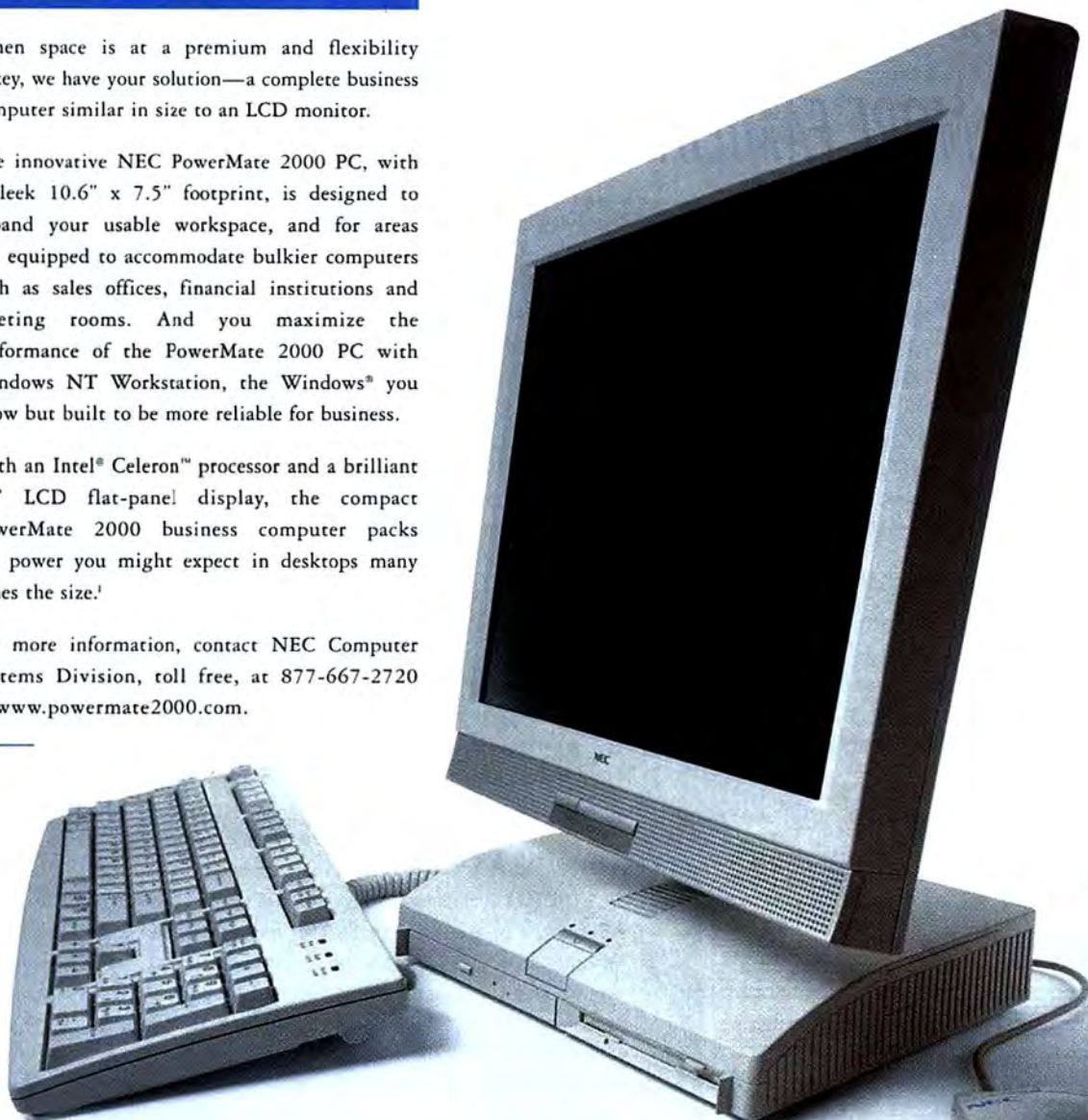
Pre-loaded with Microsoft® Windows NT® Workstation—
the most reliable Windows operating system yet.

When space is at a premium and flexibility is key, we have your solution—a complete business computer similar in size to an LCD monitor.

The innovative NEC PowerMate 2000 PC, with a sleek 10.6" x 7.5" footprint, is designed to expand your usable workspace, and for areas not equipped to accommodate bulkier computers such as sales offices, financial institutions and meeting rooms. And you maximize the performance of the PowerMate 2000 PC with Windows NT Workstation, the Windows® you know but built to be more reliable for business.

With an Intel® Celeron™ processor and a brilliant 15" LCD flat-panel display, the compact PowerMate 2000 business computer packs the power you might expect in desktops many times the size.¹

For more information, contact NEC Computer Systems Division, toll free, at 877-667-2720 or www.powermate2000.com.



NEC

www.nec-computers.com

¹ Standard features include 64MB RAM, a 6.4GB hard drive, and floppy and CD-ROM drives. Ships pre-loaded with either Microsoft NT Workstation or Windows® 98. When referring to hard drive capacity, GB stands for one billion bytes. Some utilities may indicate varying hard drive capacities. Total user accessible capacity may vary depending on operating environments.

©1999 NEC Computer Systems Division. NEC and PowerMate are registered trademarks of NEC Corporation. Microsoft Windows and Windows NT are registered trademarks of Microsoft Corporation. Intel is a registered trademark and Celeron is a trademark of Intel Corporation. All other brands and product names are trademarks or registered trademarks of the respective companies.

If you need the ultimate in security, look to Windows 2000. The OS's updated version of the NTFS file system enables users to encrypt files and folders. Once these are encrypted, only someone with the proper password access can read the protected data. Companies that send sensitive data into the field on laptops should take note.

SHARE AND SHARE A LINE

IT'S TOO BAD that Windows 98 SE isn't more compelling in other ways, because it includes a feature that an increasing number of PC users in small and home

offices need. Since Windows 95, connecting computers in a network in order to share files and printers has been easy. But without costly third-party software, Windows 9x computers could not share an Internet connection. With Windows 98 SE, they can.

Internet Connection Sharing is an easy-to-install network protocol that turns your PC into a router. Once the PCs are networked, you can step through the Internet Connection Wizard to connect your systems to the Net through the LAN. Because it uses standard TCP/IP address-assignment proto-

cols, ICS serves up its connections to just about any computer on the LAN, regardless of OS. Windows NT, Windows 2000, and Linux all come with more powerful versions of ICS, but none is as easy to set up as Windows 98 SE's.

All told, however, ICS may not be wonderful enough to make you switch to Windows 98 SE. If you're connecting a bunch of systems and want them to share a Net connection, you probably care about security. In that case, waiting for Windows 2000 may be the right move for you. Windows 98 SE, it would seem, is looking for a reason to be.

• **Windows 98 SE**; \$180 street; Microsoft; 800/426-9400; www.microsoft.com

PRODUCT INFO NO. 757

MAC OS: MORE FAMILIAR EVERY DAY

LIKE THE Volkswagen Beetle and Harley-Davidson motorcycles, the Macintosh enjoys a large cult following—and not just from those who prefer their machines in shades of tangerine, quava, and Windex blue. The Mac continues to lure new users with its elegant simplicity. But in some respects, Microsoft has learned all it can from the Mac and is now teaching Apple a thing or two.

THANKS, MAC

WHEN MICROSOFT rolled out Windows 95, it consciously mimicked many of the Mac's usability features, including the desktop,

the Start button, and the Recycle Bin. But the Mac's current operating system—Mac OS 8.x—remains easier to use than Windows. For instance, when you pop a disk into a Windows PC, you must wade through a series of icons to access it. On a Mac, an icon appears on the desktop when the disk is inserted.

Another convenience: One Mac application looks pretty much like another, at least initially, making new software easier to get acquainted with. There's also the issue of IRQs, DMAs, and other hardware settings—frequently the bane of a PC user's existence, but unheard of by Mac devotees.

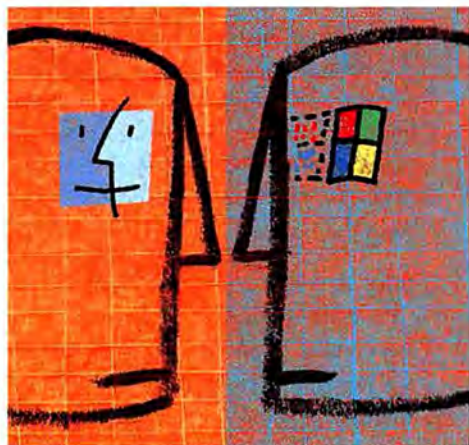
THE X PHILES

BUT THE MAC is beginning to borrow from its OS rivals. Soon after Windows 2000 hits PCs, Apple will release Mac OS X, an operating system with Unix underpinnings, à la the various versions of Linux. Mac OS X will include a key performance enhancement already built into Windows NT and Win 2000: preemptive multitasking. With it, you'll be able to perform

several chores at once without bringing the whole system to its knees. Mac OS 8.x employs cooperative multitasking, in which one program must yield to another and a demanding app can cause the entire PC to hang. Windows 9x uses a hybrid preemptive/cooperative scheme.

Mac OS X will also incorporate an NT-like memory protection scheme, constructing walls in memory to separate running programs. Theoretically, if one program has a problem, it won't crash the entire system.

In the end, Mac OS X might turn out to be a better operating system than Windows 9x, thanks to its multitasking and memory protection features. Then again, it may also find itself playing catch-up with Windows 2000. —Carol Prigades



IF THIS LOOKS like Windows 9x, that's because the Mac OS taught Microsoft everything it needed to know about ease of use.

**GUESS WHO
BEAT GATEWAY
AND COMPAQ
IN SERVICE AND
RELIABILITY?**



Quantex is a registered trademark of Quantex Microsystems, Inc. Gateway is a trademark of Gateway, Inc. Compaq is a registered trademark of Compaq Computer Corporation.

SURPRISE!



REPORT CARD DESKTOPS OVERALL USE

A Quantex

Dell
IBM

B Apple Hewlett-Packard Micron Sony

C AT&T CompUSA Digital Gateway NEC Toshiba

D AST Compaq MidWest Micro

It's Quantex Again.

"In the desktop category...Quantex, continuing its impressive improvement since debuting in our survey three years ago, breaks into the "A" category." *PC Magazine*, July 1999.

In *PC Magazine's* 1999 Desktops & Notebooks Service and Reliability Survey, Quantex was one of only three vendors to earn an "A" rating in the Desktop Category. Scoring significantly better than average in all 5 test categories—units needing repair over the past 12 months, satisfaction with reliability, satisfaction with repair, satisfaction with technical support, and buy again—*PC Magazine* praised, "Its technical scores are first-class."

* Results based on a *PC Magazine* (July 99) "Desktops and Notebooks Service and Reliability" survey in which Quantex received an "A" rating in the Desktops—Overall Use category, beating out Gateway and Compaq which received ratings of "C" and "D" respectively. Quantex received an "A" rating by scoring significantly higher than average in all 5 test categories. See *PC Magazine* July 99 for details.





Quantex SM600 SE Model Shown

Quantex desktops give you cutting-edge performance and the power to tackle advanced 2D & 3D graphics, power-hungry multimedia applications, ever-evolving Internet technology, DVD and games. Designed for the savvy professional, these desktops combine leading technologies with Quantex's award-winning service and reliability at prices that fit well within your budget.

POWER DESKTOPS **BEST BUY, QP6/500 SM-4X SE—PC WORLD AUGUST 1999**

"This powerful Pentium III-500 [Pentium® III processor-based 500MHz] PC brings an embarrassment of riches to the desktop, with just about everything a small workgroup or home office might need..."

BUDGET DESKTOPS **#1 BEST BUY, QP6/400 M-1C—PC WORLD AUGUST 1999**

"PC hunters looking for a budget small-office/home-office system will be hard pressed to do better than Quantex's new Celeron-400 [Intel Celeron™ processor-based 400MHz] PC."

Reviewed configurations may differ from advertised configurations.

POWER DESKTOPS

QUANTEX SM600 SE

New Intel® Pentium® III Processor 600MHz
128MB PC100 SDRAM Memory (768MB Max)
New 27GB 7200rpm Ultra ATA Hard Drive
19" Monitor w/Diamondtron Flat CRT (18" vis)
nVidia Riva TNT2 AGP Graphics w/32MB, TV-Out
CD-Rewritable Drive
New 8x Max Variable Speed DVD-ROM Drive
10/100Mb Ethernet, Cable Modem Ready
Aureal Vortex2 Sound, A3D 2.0 Technology
Altec Lansing ADA-305 Dolby Pro Logic Surround
Sound Speakers, Subwoofer
MS Windows 98 2nd Ed, New MS Office 2000 SBE

\$2479

Business lease: \$90/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw10s24

Common Features: ✓ 512KB Secondary Cache ✓ 3.5" 1.44MB Floppy Drive ✓ US Robotics 56K V.90 Winmodem* w/Telemetry ✓ Quantex ATX Mid Tower Case
✓ 2 USB ports ✓ Internet-ready, Multi-function Keyboard ✓ MS IntelliMouse ✓ 3-Year Limited Warranty ✓ 24/7 Toll-Free Technical Support

QUANTEX SM600

New Intel® Pentium® III Processor 600MHz
128MB PC100 SDRAM Memory (768MB Max)
20GB Ultra ATA Hard Drive
19" Monitor w/Diamondtron Flat CRT (18" vis)
3Dfx Voodoo3 3000 AGP Graphics w/16MB, TV-Out
New 8x Max Variable Speed DVD-ROM Drive
Aureal Vortex2 Sound, A3D 2.0 Technology
Altec Lansing ACS-45.1 PowerCube Speakers, Subwoofer
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000
Upgrade to Voodoo3 3500 w/TV-Tuner, add \$99
Intel® AnyPoint® Home Networking Kit, add \$149

\$1999

Business lease: \$73/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw10s25

QUANTEX SM500

Intel® Pentium® III Processor 500MHz
128MB PC100 SDRAM Memory (768MB Max)
17GB Ultra ATA Hard Drive
17" Monitor (16" vis, 25dp, 1600x1200 max res.)
3Dfx Voodoo3 3000 AGP Graphics w/16MB, TV-Out
Internal 100MB Zip Drive
New 8x Max Variable Speed DVD-ROM Drive
Aureal Vortex2 Sound, A3D 2.0 Technology
Altec Lansing ACS-90 Speakers
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000
Intel® Create & Share USB Camera Pack, add \$69

\$1479

Business lease: \$54/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw10s03

QUANTEX SM450

Intel® Pentium® III Processor 450MHz
64MB PC100 SDRAM Memory (768MB Max)
13GB Ultra ATA Hard Drive
17" Monitor (16" vis, 25dp, 1600x1200 max res.)
3Dfx Voodoo3 2000 AGP Graphics w/16MB
New 48x Max Variable Speed CD-ROM Drive
Aureal Vortex2 Sound, A3D 2.0 Technology
Altec Lansing ACS-90 Speakers
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000
Optional Mustek VDC-3000 Digital Camera, add \$199
Optional Canon BubbleJet BJC-5100 Printer, add \$179

\$1199

Business lease: \$44/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw10s14

VALUE DESKTOPS

QUANTEX M550

Intel® Pentium® III Processor 550MHz
128MB PC100 SDRAM Memory
17GB Ultra ATA Hard Drive
19" Monitor w/on-screen display (18" vis)
S3 Savage4 2D/3D AGP Graphics, 32MB
3rd Generation DVD-ROM Drive
56K V.90 Telephony Fax/Modem*
Aureal Vortex PCI Wavetable Sound
3-piece Dynamic Stereo Speakers, Subwoofer
MS Windows 98 2nd Ed, New Corel WordPerfect Office 2000

\$1699

Business lease: \$62/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw10m17

QUANTEX M500

Intel® Pentium® III Processor 500MHz
96MB PC100 SDRAM Memory
13GB Ultra ATA Hard Drive
17" Monitor w/on-screen display (15.8" vis)
S3 Savage4 2D/3D AGP Graphics, 32MB
Internal 100MB Zip Drive
3rd Generation DVD-ROM Drive
56K V.90 Telephony Fax/Modem*
Aureal Vortex PCI Wavetable Sound, Speakers
MS Windows 98 2nd Ed, New Corel WordPerfect Office 2000

\$1299

Business lease: \$47/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw10m08

QUANTEX M500c

New Intel® Celeron™ Processor 500MHz
64MB SDRAM Memory
8GB Ultra ATA Hard Drive
17" Monitor w/on-screen display (15.3" vis)
Intel 2D/3D Graphics Accelerator
3rd Generation DVD-ROM Drive
56K V.90 Telephony Fax/Modem*
Dynamic Wavetable Stereo Sound, Speakers
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000

\$999

Q-QUOTE NUMBER: pcw10m22

QUANTEX M466c

Intel® Celeron™ Processor 466MHz
64MB SDRAM Memory
6GB Ultra ATA Hard Drive
15" Digital Monitor (13.8" vis)
Intel 2D/3D Graphics Accelerator
New 48x Max Variable Speed CD-ROM Drive
56K V.90 Telephony Fax/Modem*
Dynamic Wavetable Stereo Sound, Speakers
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000

\$799

Q-QUOTE NUMBER: pcw10m14

1 • 877 • 671 • 2164

SHOP AT

pcworld.quantex.com



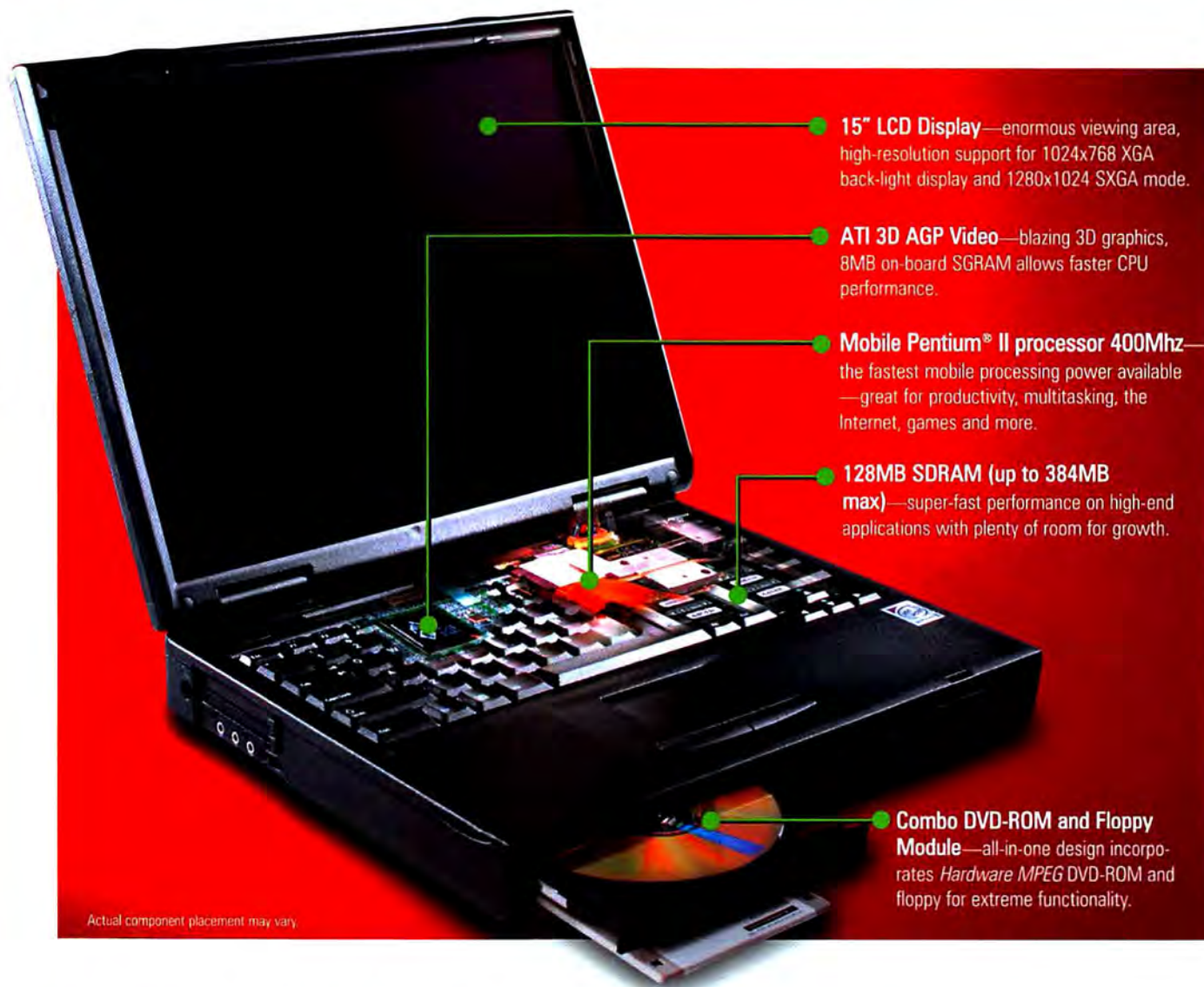
WWW.QUANTEX.COM

Q-QUOTE IS THE FASTEST WAY TO GET THE LATEST PRICING AND INFORMATION ON THE SYSTEM YOU WANT.



Quantex®
Always Working

ROCK YOUR DESKTOP, RULE THE ROAD.



Actual component placement may vary.

15" LCD Display—enormous viewing area, high-resolution support for 1024x768 XGA back-light display and 1280x1024 SXGA mode.

ATI 3D AGP Video—blazing 3D graphics, 8MB on-board SGRAM allows faster CPU performance.

Mobile Pentium® II processor 400Mhz—the fastest mobile processing power available—great for productivity, multitasking, the Internet, games and more.

128MB SDRAM (up to 384MB max)—super-fast performance on high-end applications with plenty of room for growth.

Combo DVD-ROM and Floppy Module—all-in-one design incorporates Hardware MPEG DVD-ROM and floppy for extreme functionality.



QUANTEX® I-SERIES NOTEBOOKS:
all the power of a desktop in the convenience of a laptop.

BEST BUY AWARD, QUANTEX I-1511 "DESKTOP REPLACEMENT" NOTEBOOK—COMPUTER SHOPPER, AUGUST 99

"Performance aside, the I-1511's show-stopping feature is its panoramic 15-inch display...the I-1511 turned in the highest scores to date on the Business Graphics Winmark 99, the 3D WinMark 99, and the CD-ROM WinMark 99 tests."

Quantex I-1511, the most powerful dual-purpose laptop available.

Fast enough for the most demanding desktop applications, light enough to be the perfect road companion. The Quantex® I-1511 Notebook delivers powerful, full-featured multimedia performance, giving you the power to do whatever you have to—high performance graphics and video, intensive applications, create/show presentations, cruise the Internet, movies and games—from wherever you have to.

Notebook Upgrade Options:

- Internal Modular Zip Drive (T-Series Only)...add **\$139**
- Quantex Mini-Docking Station...add **\$149**
- Long-Lasting Lithium Ion Battery...add **\$119**
- PCMCIA Network Interface Card...add **\$129**
- Quantex Deluxe Carrying Case...add **\$89**
- Upgrade from 64MB to 128MB SDRAM...add **\$149**
- Upgrade from 6GB to 10GB Hard Drive...add **\$149**
- Toshiba PDR-M3 Digital Camera...add **\$549**
- Targus Defcon1 Security Lock...add **\$49**
- Canon BJC-80 Portable Printer...add **\$289**

I-SERIES DESKTOP REPLACEMENT NOTEBOOK

Common Features: ✓ 256K On-Die Cache ✓ ESS 3D WaveTable Sound, Speakers ✓ Smart Lithium Ion Battery ✓ USB, Fast IR Ports ✓ Personal Touchpad
✓ Quantex Deluxe Carrying Case ✓ 3-Year Limited Warranty on CPU & Memory ✓ 1-Year Parts and Labor Limited Warranty on all other components ✓ 24/7 Toll-Free Technical Support

QUANTEX I-1511

New Mobile Intel® Pentium® II Processor 400MHz
15" XGA TFT Active Matrix Display
128MB SDRAM Memory
10GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Modular Combo Drive: 4x Max Variable Speed DVD-ROM Drive w/Hardware DVD Decoding & 3.5 Floppy Drive
ATI Rage Lt Pro 3D AGP Video w/8MB, TV-Out
MS Windows 98 Second Edition
New Microsoft Office 2000 SBE

\$2799

Business lease:\$102/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw10120

QUANTEX I-1510

New Mobile Intel® Pentium® II Processor 400MHz
15" XGA TFT Active Matrix Display
64MB SDRAM Memory
8GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Modular Combo Drive: 4x Max Variable Speed DVD-ROM Drive w/Hardware DVD Decoding & 3.5 Floppy Drive
ATI Rage Lt Pro 3D AGP Video w/8MB, TV-Out
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000

\$2499

Business lease:\$91/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw10121

QUANTEX I-1410

New Mobile Intel® Pentium® II Processor 400MHz
14.1" XGA TFT Active Matrix Display
64MB SDRAM Memory
8GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Modular Combo Drive: 4x Max Variable Speed DVD-ROM Drive w/Hardware DVD Decoding & 3.5 Floppy Drive
ATI Rage Lt Pro 3D AGP Video w/8MB, TV-Out
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000

\$2299

Business lease:\$83/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw10116

QUANTEX I-1400

Mobile Intel® Pentium® II Processor 366MHz
14.1" XGA TFT Active Matrix Display
32MB SDRAM Memory
4GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Modular Combo Drive: 24x Max Variable Speed CD-ROM Drive & 3.5 Floppy Drive
ATI Rage Lt Pro 3D AGP Video w/8MB, TV-Out
MS Windows 98 2nd Ed., Corel WordPerfect Office 2000
Canon BubbleJet BJC-1000 Color Printer Included!

\$1999

Business lease:\$73/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw10102

T-SERIES MOBILE WARRIOR NOTEBOOK

Common Features: ✓ 256K On-Die Cache ✓ 3.5" Modular Floppy Drive ✓ Smart Lithium Ion Battery ✓ USB, Fast IR Ports
✓ Stereo sound & speakers ✓ 3-Year Limited Warranty on CPU & Memory ✓ 1-Year Parts and Labor Limited Warranty on all other components

QUANTEX T-1411

New Mobile Intel® Pentium® II Processor 400MHz
Ultra-Thin Design (12.44 x 9.84 x 1.43")
14.1" XGA TFT Active Matrix Display
128MB SDRAM Memory
6GB Ultra ATA Hard Drive
Modular 4x Max Variable Speed DVD-ROM Drive
56K V.90 Fax/Modem*
NeoMagic NMG5 128-bit AGP Video
MS Windows 98 Second Edition
New Microsoft Office 2000 SBE
Quantex Carrying Case Included!

\$2399

Business lease:\$37/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw10116

QUANTEX T-1400

Mobile Intel® Pentium® II Processor 266MHz
Ultra-Thin Design (12.44 x 9.84 x 1.43")
14.1" XGA TFT Active Matrix Display
64MB SDRAM Memory
4GB Ultra ATA Hard Drive
Modular 24x Max Variable Speed CD-ROM Drive
56K V.90 Fax/Modem*
NeoMagic NMG5 128-bit AGP Video
MS Windows 98 Second Edition
Quantex Carrying Case Included!
Canon BubbleJet BJC-1000 Color Printer Included!

\$1799

Business lease:\$65/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw10117

INTRODUCING

B-SERIES NO-COMPROMISE AFFORDABILITY NOTEBOOK

Common Features: ✓ 128K On-Die Cache ✓ Built-In 3.5" Floppy Drive ✓ Smart Lithium Ion Battery ✓ USB, Fast IR Ports
✓ Stereo sound & speakers ✓ 3-Year Limited Warranty on CPU & Memory ✓ 1-Year Parts and Labor Limited Warranty on all other components

QUANTEX B-1211

Mobile Intel® Celeron™ Processor 400MHz
12.1" SVGA TFT Active Matrix Display
64MB SDRAM Memory
4GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Built-In 24x Max Variable Speed CD-ROM Drive
NeoMagic NMG5 128-bit AGP Video
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000
Quantex Carrying Case Included!
Canon BubbleJet BJC-1000 Color Printer Included!

\$1499

Business lease:\$54/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw10a03

QUANTEX B-1200

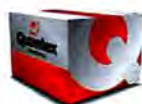
Mobile Intel® Celeron™ Processor 333MHz
12.1" SVGA TFT Active Matrix Display
32MB SDRAM Memory
4GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Built-In 24x Max Variable Speed CD-ROM Drive
NeoMagic NMG5 128-bit AGP Video
MS Windows 98 Second Edition
Quantex Carrying Case Included!
Upgrade from 32MB to 64MB, add \$99
Upgrade from 4GB to 6GB Hard Drive, add \$99

\$1299

Business lease:\$47/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw10a00

1 • 877 • 671 • 2164

SHOP AT **pcworld.quantex.com**



Quantex
Always Working



WWW.QUANTEX.COM

Q-QUOTE IS THE FASTEST WAY TO GET THE LATEST PRICING AND INFORMATION ON THE SYSTEM YOU WANT.

GROW YOUR BUSINESS.

QX5000NT Web Server

Intel® Pentium® III Processor 500MHz
Dual Processor Upgradeable
Intel 440GX+ Server Board
128MB ECC SDRAM (2GB Max)
9GB Ultra2/LVD SCSI Hot Swap Drive
Dual Channel Ultra2/LVD SCSI Controller
Dual Peer PCI Buses; 6 PCI, 1 ISA Slots
5 Hot-Swap Drive Bays; 4 fans
Windows NT Server 4.0, 10-Client Access
Microsoft Front Page Web Creation & Management Tool
Microsoft Internet Information Server 2.0
Intel EtherExpress Pro 100 Ethernet Adapter
Chassis-Intrusion Switch; Drive Bay Lock

\$2999

Business lease: \$109/Mo., 36 Mos. \$0 Money Down
QUOTE NUMBER: pcw10q15

ENTERPRISE-CLASS ENGINEERING, IN A RANGE OF SERVERS DESIGNED ESPECIALLY FOR THE NEEDS AND BUDGETS OF SMALL AND MEDIUM SIZE BUSINESSES.



PERFORMANCE SERVERS

Common Features: ✓ 512KB ECC Secondary Cache ✓ 3.5" 1.44MB Floppy Drive ✓ 40x Max Variable Speed CD-ROM Drive ✓ Emergency Management Port ✓ Intel Server Control Management Console ✓ 104-Key Keyboard ✓ MS Mouse ✓ 3-Year Limited Warranty ✓ 24/7 Toll-Free Dedicated Server Hardware Technical Support

QUANTEX® QX6200

Intel® Pentium® III Xeon® Processor 550MHz
Dual Processor Upgradeable
Intel C440GX+ Server Board
128MB ECC SDRAM (2GB Max)
9GB Ultra2/LVD SCSI Hot Swap Hard Drive
Dual Channel Ultra2/LVD SCSI Controller
Dual Peer PCI Buses; 6 PCI, 1 ISA Slots
2+1 400W Redundant Power Supplies
6 Hot-Swap Drive Bays; Redundant Fans
Intel EtherExpress Pro 100 Ethernet Adapter
Chassis-Intrusion Switch; Drive Bay Lock
Upgrade to Rack-mount kit, add \$99

\$4099

Business lease: \$141/Mo., 36 Mos. \$0 Money Down
QUOTE NUMBER: pcw10q25

QUANTEX QX5000R

Intel® Pentium® III Processor 600MHz
Dual Processor Upgradeable
Intel L440GX+ Server Board
128MB ECC SDRAM (2GB Max)
Three 9GB Ultra2/LVD SCSI Hot Swap Hard Drives
AMI MegaRAID 466WS Ultra2 RAID Controller, 16MB
Dual Channel Ultra2/LVD SCSI Controller
Dual Peer PCI Buses; 6 PCI, 1 ISA Slots
5 Hot-Swap Drive Bays; 4 Fans
Intel EtherExpress Pro 100 Ethernet Adapter
Chassis-Intrusion Switch; Drive Bay Lock
Optional 12/24GB SCSI DAT Backup, add \$749

\$3999

Business lease: \$138/Mo., 36 Mos. \$0 Money Down
QUOTE NUMBER: pcw10q38

QUANTEX QX5000

Intel® Pentium® III Processor 550MHz
Dual Processor Upgradeable
Intel L440GX+ Server Board
128MB ECC SDRAM (2GB Max)
9GB Ultra2/LVD SCSI Hot Swap Hard Drive
Dual Channel Ultra2/LVD SCSI Controller
Dual Peer PCI Buses; 6 PCI, 1 ISA Slots
5 Hot-Swap Drive Bays; 4 Fans
Intel EtherExpress Pro 100 Ethernet Adapter
Chassis-Intrusion Switch; Drive Bay Lock
Optional AMI MegaRAID 466WS, add \$399
Windows NT Server 4.0, 10-Client Access, add \$799

\$2499

Business lease: \$91/Mo., 36 Mos. \$0 Money Down
QUOTE NUMBER: pcw10q29

QUANTEX QX3000

Intel® Pentium® III Processor 500MHz
Intel 440BX Chipset
Intel N440BX Server Board
64MB ECC SDRAM (768MB Max)
4.5GB Ultra-Wide SCSI Hard Drive
Integrated Ultra-Wide SCSI Controller
3 PCI Slots, 1 ISA Slot, 1 Shared PCI/ISA
Mid Tower Server Case: 4 Internal 3.5 Bays,
4 External 5.25 Bays
Intel EtherExpress Pro 100 Ethernet Adapter
Upgrade Special: Add 64MB ECC SDRAM for just \$99
APC SmartUPS 700VA, add \$349

\$1399

Business lease: \$51/Mo., 36 Mos. \$0 Money Down
QUOTE NUMBER: pcw10q03

CALL FOR SPECIALS ON INTEL® NETWORKING PRODUCTS. [Offer Includes Hubs, Switches, Routers, Gigabit Adapters and more]



1 • 877 • 671 • 2164

SHOP AT

pcworld.quantex.com



Quantex
Always Working

© 1999 Quantex Microsystems, Inc. All Rights Reserved. Quantex Microsystems, Inc. 4008 Pierce Street, Somerset, NJ 08873. Sales Hours: M-F 9am - 12pm EST, Sat 9am - 6pm. Buyer's rights to their entirety are contained in: Quantex Microsystems' Limited Warranty, a free copy of which may be obtained by writing Quantex at Quantex Microsystems, Inc. 4008 Pierce St., Somerset, NJ 08873 or calling 1-877-671-2164. All desktop system sales are subject to Quantex's three-year limited warranty and terms and conditions of sale. For details on our warranty or money-back guarantee call or write us. Other peripherals such as printers, modems, etc., are covered by manufacturer's warranty. Software titles are subject to change and cannot be substituted. All prices and configurations are subject to change without notice or obligation and do not include shipping or sales tax. All returned items must have a conspicuous RMA number issued by Quantex and be in original packaging. 30-day conditional money-back policy does not include return freight or original shipping/handling charges. *Maximum transmission speed of up to 9600bps when downloading and 33600bps when uploading data. Actual speeds may vary depending on line conditions and carrier FCC restrictions. Quantex is not responsible for errors in typographic or photographic reproductions. Current system photos shown for illustrative purposes only. Quantex is a registered trademark of Quantex Microsystems, Inc. Intel, Pentium, and the Intel Inside logo are registered trademarks and Celeron and Pentium III Xeon are trademarks of Intel. All other company trademarks are trademarks of each respective company.

LINUX

OpenLinux vs. Red Hat

PEOPLE LIKE CHOICE and tend to root for underdogs, so the tremendous interest in Linux is only natural. Windows fans and foes alike recognize the advantages of having another strong operating-system competitor. When that OS is the after-hours programming project of a worldwide team of volunteers, you've got the makings of one of the great Jack-against-the-giant stories of our time.

In computing realms traditionally dominated by Unix, Linux is already a hit. It runs Web servers and powers the desktops of engineers, scientists, and other technical types, and as a low-cost (or no-cost) OS with a reputation for rock-solid reliability, it's attracted millions of devotees. But how about the areas where Windows, and MS-DOS before it, have long dominated? Is Linux ready to meet all the needs of typical business users?

The short answer: Not yet, but it's getting there. We tested the latest editions of two major Linux versions: Caldera Systems' OpenLinux 2.2 and Red Hat's Red Hat Linux 6. Both make strides toward bringing Linux to the masses; of the two, we'd recommend OpenLinux to Windows users looking to dabble in this intriguing alternative OS. For now, though, usability hurdles, hardware hassles, and a haphazard selection of compatible business applications prevent Linux from being the true Windows killer it may someday become.

THE FREE WAY

LINUX IS THE best-known example of the free software phenomenon, but that doesn't guarantee that you'll get it gratis. The "free" in free software means that Linux is an open-source product—the source code of the Linux kernel (currently at version 2.2), and of associated programs, is publicly available. Developers can customize Linux in any way they

want, as long as they in turn release their changes as open source. As a result, multiple organizations and companies have come up with their own versions of the OS—"distributions," in Linux parlance. More than 20 types are available, from companies, nonprofit organizations, and individuals. Besides the Caldera and Red Hat distributions, major contenders include Debian, Mandrake, Slackware, SuSE, and TurboLinux.

If you're willing to subject your modem to a massive download, you can get any of these distributions for free on the Web. Alternatively, you can pick up a jewel-boxed distribution on CD-ROM at a nominal cost (typically under \$20).

The most expensive option—but probably the most practical for Linux newcomers—is to purchase a distribution that's available as a shrink-wrapped product, generally for somewhere between \$40 and \$80. Besides a colorful cardboard box and the distribution itself, you get printed manuals and technical support from a single company. (These were the versions of OpenLinux and Red Hat Linux we tested.)

Every Linux distribution is an intricate assemblage of software components, typically melding the Linux kernel (the heart of the OS) with differing installation and administration tools, drivers, multiple layers of technology for pro- ▶

OPENLINUX 2.2 greets users with a warm, Windows-like embrace.



LINUX OPENS UP

- 1 With OpenLinux and its KDE interface, icons for programs, folders, and documents can sit on your desktop.
- 2 OpenLinux's file manager isn't exactly Windows Explorer, but you'll get used to it pretty quickly.
- 3 OpenLinux menus look a lot like Windows 9x's, but there's no central Control Panel for managing devices.
- 4 If you like Windows' taskbar, you'll feel right at home in OpenLinux.
- 5 That K in the lower-left corner is OpenLinux's equivalent of the Windows Start button.

viding a graphical user interface, and a generous assortment of applications. And each distribution has its own distinct personality: Some are aimed at Linux gurus, others at people who plan to use the OS as a networked server platform. Both OpenLinux and Red Hat are known for focusing on ease of installation and use, key issues for Windows users venturing into Linux for the first time.

OPENLINUX MAKES ITS MARK

EXHILARATING and infuriating in roughly equal measure, OpenLinux 2.2 shows how close Linux has come to the mainstream—and how far it has to go. As Windows users, we were dumbstruck by OpenLinux's reliability: In a month of use, we experienced only two application crashes, neither of which brought the operating system down. In fact, we never had to reboot the OS. For a Linux distribution, OpenLinux is also surprisingly easy to install and use. But too many basic tasks—like installing a printer—still require knowledge of the OS's innards.

Unless you're itching to dump Windows, you'll be glad to know that OpenLinux can peacefully coexist with the OS That Made Redmond Famous. You can launch its installation program from within Windows, and it comes with special versions of PowerQuest's Partition-Magic and BootMagic, utilities that let you carve out a chunk of your hard disk for the new OS and then choose between it and Windows each time you boot your PC. (Owners of humongous hard drives may have to spring for a stand-alone disk-partitioning utility, since the bundled version of PartitionMagic supports only 8GB and smaller disks.)

While Linux is famous for running briskly on low-end PCs, that's partly because many of the operating system's faithful use it in DOS-style command-line mode, without a resource-hogging graphical interface—and that's not something an émigré from Windows is likely to do. Using OpenLinux with a full graphical interface, we found it sluggish but bearable on a Pentium-75-based Dell Dimension with 32MB of RAM, and—no surprise—extremely snappy on

SO YOU WANT to give Linux a spin? Whether you download it for free or buy a packaged copy, stop listening to the gearheads who say Linux is now as easy to install as Windows. While it's no longer prohibitively difficult to use, you should proceed with caution and heed our advice:

[1] Read. Find out as much as you can about Linux before diving in. You can start at the Web sites of Red Hat (www.redhat.com) and Caldera (www.calderasystems.com). But for bias-free advice, search on Linux at www.yahoo.com or go directly to one of our favorite independent sites, www.control-escape.com—it's perfect for Windows users considering a move to Linux.



a Dell OptiPlex GXp and a Quantex QP6/500, two 500-MHz Pentium III systems with 64MB of RAM.

SEMIFAMILIAR ENVIRONS

UNLIKE WINDOWS, Linux doesn't have a standard graphical user interface. Instead, several free desktop environments exist. OpenLinux's default interface is version 1.1 of KDE (short for the K Desktop Environment; the K doesn't stand for anything in particular).

In many ways, Windows users will feel right at home in KDE. It has close counterparts to Windows' Start button, taskbar, and desktop; and dragging, dropping, and right-clicking work as you'd expect. Hitting <Alt>-<Tab> even cycles you through open programs à la Task Manager. KDE's not a Windows clone, though: You get four separate desktops, each accessible with a single click.

[2] Go shopping. Packages like OpenLinux and Red Hat Linux come with application software, but you'll want more options to ensure you can get work done. Lots of software is available on the Web. Start at Linuxberg (www.linuxberg.com), which has tons of downloadable apps.

[3] Practice. If you have an older system sitting around—one that holds no important data—try installing Linux there first. If the system implodes, you're less likely to follow suit.

[4] Back up. If you've decided to put Linux on your primary PC, make a complete backup before you begin. Along with all our successful installations was one debacle in which we slaughtered our Windows setup—and it takes only one disaster to ruin your month.

[5] Inventory. Know your system inside and out. List all your hardware components, and note things like your monitor's refresh rate. Though new Linux distributions are easier to use, their setup programs may still ask stumblers like, "What RAMDAC do you have?"

[6] Make room. If you're wise, you won't replace Windows with Linux. You'll set up your PC so it can run either operating system. That means creating a large partition to hold Linux and all its goodies (which could add up to 600MB) or installing a second hard drive.

Still, KDE can't mask Linux's underlying complexity. For example, unless you're already a Linux maven, the steps required to install new software can be onerous. You may have to run the setup program from a command line, massage configuration files by hand, or even compile source code into an executable program yourself. Or you may simply be out of luck, since not all Linux apps can be installed within all distributions.

GEEKWARE GALORE

BESIDES ESTABLISHING OpenLinux's standard look and feel, KDE furnishes it with a suite of applets that use more-or-less consistent user interfaces. Among the highlights: KOrganizer, a basic but friendly personal information organizer not unlike Sidekick; KPilot, which lets you exchange data with a Palm handheld organizer; and KPPP, a utility akin to ►

Sound
BLASTER **Sound Blaster Live!™**



Make your

Internet Music Rock!

Sound Blaster Live!™ makes it happen.



Everyone seems to be downloading MP3 music these days but Creative takes the experience to a whole new level.

Sound Blaster Live!™ produces digital quality MP3s that sound incredible. With Environmental Audio™ effects like Pop, Rock, Jazz, and more, you can add dimension to your music. Sound Blaster Live!™ is the ultimate tool for creating and customizing MP3 and downloadable internet audio.

Cambridge SoundWorks® FourPointSurround™ FPS2000 Digital speakers take the digital MP3 music experience one step further. They're sure to keep your MP3 tunes sounding clean with accurate digital surround sound.

Visit www.creative.com for more info.



Sound Blaster Live!™ Sound Card



Cambridge SoundWorks® Surround Speakers

THE DIFFERENCE WILL AMAZE YOU

CREATIVE®

WWW.CREATIVE.COM

Circle 54 on card or go to www.pcworld.com/productinfo

Where can I find my uncle?

Search

altavista





Altavista is a registered trademark of Altavista Company.

altavista.com

Windows' Dial-Up Networking that makes getting connected to an ISP reasonably straightforward.

Beyond KDE's own applets, OpenLinux comes with a seemingly endless parade of free programs. The bulk of these, however, are server apps, programming tools, and arcane command-line utilities that only a geek could cherish. Workaday business applications remain uncommon in the Linux world, but there are some notable exceptions. OpenLinux comes bundled with Netscape Communicator 4.5, which, as in Windows, delivers capable Web browsing and e-mail (and occasional crashes, the only ones we suffered with this distribution). You also get Corel's always-potent WordPerfect 8, plus StarOffice, a feature-rich office suite containing a word processor, spreadsheet software, a presentation package, and more.

Also included is a popular and powerful image editor called the GIMP. (That's an acronym for GNU Image Manipulation Program, GNU being the specification for open-source Unix-type operating systems that Linux follows; GNU is short for...oh, never mind.) Unlike the aforementioned programs, the GIMP strays from Windows-style interface conventions by depending more on right-clicking than on drop-down menus. Since no single company mandates how Linux applications should look and work, you can't expect the consistent interfaces that other OSs strive to provide.

PLUG AND PANIC

HARD TO BELIEVE: It's been four short years since Windows 95's Plug and Play arrived on the scene, greatly reducing the pain of configuring a PC's add-in cards and peripherals. These days, we take it for granted—but spend some time with OpenLinux (or Linux in general), and you'll gain a deeper appreciation of Plug and Play's value.

The OS's inability to autodetect and configure peripherals when you add them is only part of the problem. Because few hardware devices support Linux right out of the box, it's mostly up to the far-flung Linux development team

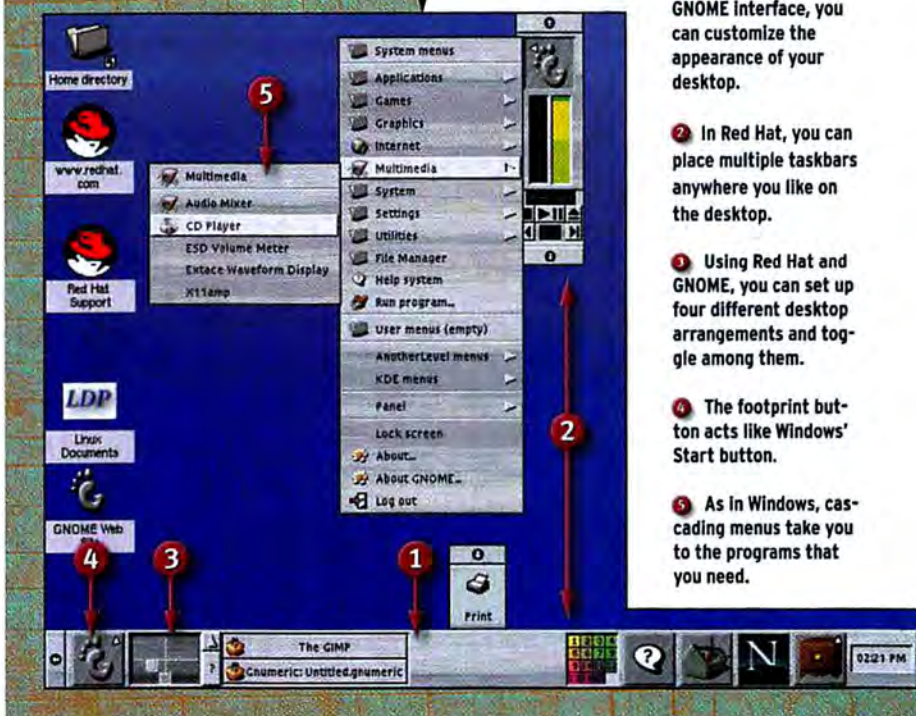
to produce drivers. Many are bundled with OpenLinux, and others are available on the Web, but they're often difficult to track down and install. Moreover, support for video cards, sound cards, and printers remains far from universal and is patchier still for devices such as scanners, digital cameras, and TV tuner cards. Peripherals that depend on the PC to do much processing—such as Winmodems and many ink jet printers—probably won't work at all, and increasingly important technologies such as USB and DVD are supported only exper-

Color printer. (A kind soul in an Internet newsgroup eventually steered us through the process.)

MANUAL LABOR

IN THEORY, you pay for a shrink-wrapped Linux distribution to get a printed manual and tech support. Too often, though, Caldera's documentation is inadequate: "Printing files in Linux is not as straightforward as in other operating systems," it says ominously, before devoting less than a page to this vital topic. And while the boxed OpenLinux's

LIKE OPENLinux, Red Hat 6 closely resembles Windows. But it's also amazingly flexible, and even fun to look at.



DONNING A RED HAT

- 1 With Red Hat's GNOME interface, you can customize the appearance of your desktop.
- 2 In Red Hat, you can place multiple taskbars anywhere you like on the desktop.
- 3 Using Red Hat and GNOME, you can set up four different desktop arrangements and toggle among them.
- 4 The footprint button acts like Windows' Start button.
- 5 As in Windows, cascading menus take you to the programs that you need.

imentally. For a list of hardware that's compatible with OpenLinux, check out www.calderasystems.com/products/openlinux/hardware.html.

Linux enthusiasts may not be fazed by the technical know-how and tinkering required to get everyday peripherals working, but casual users are bound to face frustration. We gave up on getting OpenLinux to recognize our Dell OptiPlex's sound card, and came close to doing the same with an Epson Stylus

\$50 price includes 90 days of support, it's by e-mail, not phone. Caldera does offer phone-based assistance, but at \$50 per half hour (or \$100 per incident), it ain't cheap.

Fortunately, the Web is rife with free, expert Linux advice. The Linux How-To's, a series of tutorials available at howto.linuxberg.com and elsewhere, are especially valuable. Which underlines one of free software's core virtues: It never depends on the efforts of a single company. But as impressive as OpenLinux 2.2 ►

EVEN THE MOST ADVANCED DIGITAL COPIER CAN'T COPY THIS.

Inside every Toshiba copier and facsimile you'll find Toshiba quality, reliability, and ingenuity—advantages no other company can copy.

In fact, product innovation has been taking place at Toshiba for 125



years. Our notebook computers have awarded us four out of five Channel's Toshiba Copiers and Facsimiles.



been wildly successful, Choice awards, including the coveted Why buy a copy when you can get capturing market overall performance as "Manufacturer the original?

share year after of the Year". BTA also named Toshiba year. "Manufacturer of the Year"

And our copiers and facsimiles in 1995, 1996 & 1997.

have gathered quite a following. This And Office Products Analyst year, Business Technology Association named us #1 for reliability.



TOSHIBA
COPIERS ♦ FAX

Visit our website at <http://copier.toshiba.com/pcworld> or call 1-800-GO-TOSHIBA

Circle 234 on card or go to www.pcworld.com/productinfo

is on some fronts, Caldera still has work to do if this distribution is to become a truly accessible, mass-market OS.

TRYING RED HAT ON FOR SIZE

RED HAT LINUX 6 uses the same kernel as OpenLinux, so it's not surprising that they're similar in many ways. But since the Red Hat distribution tops the kernel with its own selection of add-ons, the two OSs also exhibit striking differences. While Red Hat 6 has its virtues, it makes for a less inviting introduction to Linux than OpenLinux provides. (Its \$80 price tag—\$30 higher than that of OpenLinux—doesn't factor into our verdict, since Red Hat throws in 30 days of installation support by phone and 90 days of support via e-mail, a valuable fringe benefit that Caldera's product lacks.)

For Linux neophytes, Red Hat Linux's weakest point is a setup system that's less friendly than OpenLinux's. Just getting the OS onto your hard drive can be tough, since its Disk Druid partitioning software assumes that you're familiar with the Linux file system.

One installation snafu nearly stopped us cold: The Red Hat CD-ROM lacked a driver for the 3DFX Voodoo3 chip set on our Quantex system's graphics adapter. A beta driver developed by a Linux user is available on the Web, but its installation instructions presume you're a Linux veteran. (OpenLinux, by contrast, identified the Quantex's card automatically and quickly installed a compatible driver.)

After we got Red Hat Linux up and running, it performed in the same league as OpenLinux—tolerable on a Pentium-75 PC with 32MB, and quick on our 500-MHz Pentium III systems. Both versions require roughly 600MB of disk space for a workstation installation.

NO PLACE LIKE GNOME?

RED HAT LINUX's default graphical user is a KDE rival called GNOME (an acronym for GNU Network Object Model Environment). This new environment has lots in common with both Windows and KDE: You get pop-up menus, a taskbar, and a file manager that are much like their Microsoft ►

LINUX SPOKEN HERE

YOU'VE HEARD about it around the water cooler. And now, after much soul-searching, you've finally decided to give Linux a try.

Good luck getting it preinstalled on a PC. Virtually every major PC vendor will let you choose between Windows 98 SE and NT 4. But despite the buzz surrounding Linux, PC makers are reluctant to load the upstarts on their hard drives.

LOOK BEFORE YOU LINUX

MOST MAJOR vendors certify that their units—well, some of their units—will run Linux, but many won't sell you a PC with it installed. Dell is among the few that certify Linux across several lines and offer you the OS factory-installed. Compaq resellers can preload several flavors of Linux.

But most other companies limit Linux installations to servers. Gateway's Keith Karlson, for one, says the company is simply "not seeing demand



for [Linux]" on desktop PCs. None of the major PC companies we spoke to certifies Linux on its notebooks.

For now, only a few small, specialized vendors concentrate their efforts on selling preloaded Linux computers, including BuyPogo.com (www.buypogo.com), VA Linux Systems (www.valinux.com), and The Linux Store (www.thelinuxstore.com). —Anush Yeghazarian

VENDOR	Certifies Linux	Preloads Linux	Linux versions	Linux system availability
Acer	●	○ ¹	Red Hat 6	AcerAltos servers
AST	●	●	OpenLinux 2.2	Premium servers
Compaq	●	●	OpenLinux 2.2, Red Hat 6, SuSE, TurboLinux	Alpha, ProLiant, Prosignia servers; Professional workstations; Deskpro EN and EP desktops
Dell	●	●	Red Hat 6	PowerEdge servers, Precision workstations, Optiplex desktops
Gateway	●	●	Red Hat 6	7000, 8000, 9000 servers
Hewlett-Packard	●	●	Red Hat 6	NetServers, Visualize Personal workstations, Kayak desktops
IBM	●	○ ¹	OpenLinux 2.2, Red Hat 6, SuSE, TurboLinux	Netfinity servers
Micron	●	○	Red Hat 6	NetFrame servers, ClientPro and Millennia desktops
NEC	○	○	n/a	n/a ²
Quantex	○	○	n/a	n/a

● Yes ○ No n/a = not applicable

¹ Resellers can choose to preload Linux on desktops.

² NEC is qualifying Linux on its Express servers, which involves a less stringent level of compatibility than called for by certification.

**YOU'RE
SERIOUS**

**GET
CONNECTED**



IT'S YOUR COMPANY. You've given everyone a PC, but is that enough? Or do you need to do more? When you're the boss, networking takes on a new meaning. The **IBM Small Business Program** has the e-business solutions you could use.

IBM®



YOUR STAFF IS GROWING. You need to make sure they work together efficiently. The **IBM Small Business Program** makes it easy.

THE POWER OF e-BUSINESS. Build a network and give your business the competitive edge. Watch what happens when your employees connect through e-mail. Arrange meetings with online calendaring. Coordinate projects with group scheduling. You'll see your business become an e-business.

TOOLS THAT ARE PRICED RIGHT. Start with an IBM Netfinity® 3000 server, and receive Lotus® Domino™ R5 Mail Server at no charge.* Add IBM PC 300®GL desktops and IBM IntelliStation® workstations, customized with IBM accessories and upgrades, and you have the foundation of your network.

WE CAN HELP YOU SET IT UP. Teach you how to use it. Fix it if it breaks.† And with IBM service and support designed for small businesses, you'll get the help you may want – onsite or on the phone – so you can stay connected. When you want even more, we can offer you additional support to fit your business. It's the peace of mind you need when you're the boss.

IBM NETFINITY 3000

Intel® Pentium® III processor 500MHz*
64MB RAM • 91GB* HDD
32X-14X* CD-ROM
Lotus Domino R5 Mail Server with 5 clients
90 days of installation and configuration support
Three-year onsite/three-year parts and labor limited warranties



\$1,919*

SuccessLease™
for Small Business

\$69/MONTH*

CUSTOMIZE YOURS:

10/20GB Tape Drive	\$499*	or \$18/month*
91GB Hard Disk Drive	\$479*	or \$17/month*
IBM ServeRAID™ 3L	\$785*	or \$28/month*

IBM PC 300GL

Intel Celeron™ processor 400MHz
32MB RAM • 4.2GB HDD
15" Monitor (13.7" viewable)
Integrated AGP Graphics
Microsoft® Windows® 98
Lotus SmartSuite® Millennium Edition®



\$978*

SuccessLease
for Small Business

\$35/MONTH*

CUSTOMIZE YOURS:

10/100 EtherJet™ Adapter	\$83*	or \$3/month*
32MB SDRAM Memory	\$69*	or \$2/month*
40X-17X Internal CD-ROM Drive	\$115*	or \$4/month*

IBM INTELLISTATION E PRO

Single Pentium III processor 500MHz
IBM® Fire GL 1" • 13.5GB/7200 rpm HDD
128GB ECC SDRAM
40X-17X CD-ROM
15" Monitor (13.7" viewable)
Microsoft Windows NT® 4.0



\$3,108*

SuccessLease
for Small Business

\$108/MONTH*

CUSTOMIZE YOURS:

21" Monitor (19.8" viewable)	\$1,179*	or \$42/month*
128MB ECC SDRAM Memory	\$209*	or \$8/month*
10/20GB TR5 EIDE Tape Drive	\$299*	or \$11/month*

BUY IT.

Go to **www.ibm.com/smallbusiness/sb450** to find out more.
Or call 1 888 IBM-5800, code sb450, to discuss the tools you need.



*Available until 12/31/99. *Estimated reseller price to end users for Netfinity Model #8476-51U, Tape Drive Part #01K1319, Disk Drive Part #20L0553, ServeRAID Part #01K7364, PC 300GL Model #6287-4BU, 15" Monitor Model #65460AN, Adapter Part #34L1201, Memory Part #01K1136, CD-ROM Part #33L4971, IntelliStation Model #6893-57U, 15" Monitor Model #65464AN, 21" Monitor Model #655843N, Memory Part #01K1131, Tape Drive Part #20L0549. †SuccessLease is offered and administered in the US and Canada by Fidelity Leasing Inc., an approved provider of business financing for IBM Global Financing. All terms are provided by Fidelity Leasing Inc.; amount of monthly lease payments based on 36-month term, full payout lease, to qualified business customers, installing in the US. A documentation fee and first month payment due at lease signing. Any taxes are additional. Other terms and financing structures are available. Offer may be withdrawn or changed without notice. Options must be leased with system unit. †For terms and conditions or copies of IBM's Statement of Limited Warranty, call 1 800 772-2227 in the US and in Canada call 1 800 426-2255. International Warranty Service included in those countries where this product is offered. Telephone support may be subject to additional charges. *MHz denotes microprocessor internal clock speed; other factors may affect application performance. *GB means one billion bytes for hard drive capacity. Accessible capacity may vary. *Variable read rate. Actual playback speed will vary and is often less than the maximum possible. *May be preloaded, included on a CD, or available on a CD at no charge. *Fire GL1 is a trademark of Diamond Multimedia Systems, and is used under license. Other restrictions may apply. All PCs in this ad ship with an operating system, excluding servers. All product names are registered trademarks or trademarks of International Business Machines Corporation. Lotus and Lotus SmartSuite are registered trademarks and Domino is a trademark of Lotus Development Corporation, an IBM company. Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation. Intel, the Intel Inside logo, and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Other company, product and service names may be trademarks or service marks of others. ©1999 IBM Corp. All rights reserved.

counterparts, plus KDE-style multiple desktops. But as in KDE, some Linux conventions in GNOME will seem odd and inconvenient to Windows users.

GNOME is as close to infinitely customizable as a graphical environment gets: You can create multiple taskbars, choose themes that radically change the interface's look and feel, and select fancy special effects (such as windows that turn translucent when you drag them around). But GNOME is less reliable than the slightly older, more mature KDE. On-screen windows occasionally refused to close, and when we piled on too many desktop customizations, the system bogged down. Still, the OS itself never crashed.

The bundled applets that come with GNOME, though promising, remain works in progress. In fact, many—such as the GNUMERIC spreadsheet—are early betas. GNUMERIC has a slick, Excel-like interface and can autofill cells, but it lacks a few features such as...well, printing. The rough state of the GNOME applications isn't a disaster, however, since Red Hat comes with many of the same apps that OpenLinux has: Netscape Communicator, StarOffice, WordPerfect, the GIMP, and more.

Even so, until GNOME gets a bit more refined, we prefer the more stable and predictable KDE Linux environment. And thanks to Linux's open nature, we can act on that preference: The Red Hat package includes KDE and lets you install it instead of the default GNOME desktop.

CONFIGURATION CONUNDRUM

THE LINUX kernel's lack of Plug and Play and its scattershot hardware support hobble Red Hat Linux as badly as they hinder OpenLinux. And Red Hat's configuration tools are often thornier. For instance, the features you need to set up a modem and ISP connection are buried in Linuxconf, a nonintuitive utility that handles many other tasks. We much prefer KPPP, OpenLinux's Windows-like dial-up networking utility.

On the plus side, Red Hat Linux has an applet that autodetects and configures popular sound cards. And if you're stuck

on a hardware problem, the 650 pages of printed documentation are likelier to contain the answer than OpenLinux's thinner, vaguer manual. For a list of Red Hat-compatible hardware, see www.redhat.com/corp/support/hardware.

BUILDING A BETTER LINUX

DESPITE THEIR strengths and immense potential, neither Red Hat Linux nor OpenLinux makes sense for most Windows users yet. Linux's origins as an OS for hard-core technical users are still too apparent. But keep an eye out for Corel Linux, a new distribution due this year. Corel plans to mesh the Debian distribution and KDE graphical interface with new tools designed to make Linux

easier to install, configure, and use.

More Linux editions of Windows apps would help, but few major developers have committed to the OS. Here again, Corel is pushing the envelope: It plans to ship full-blown Linux versions of its WordPerfect Office suite and CorelDraw graphics package next year.

Linux's fate is anybody's guess, but if it stays cheap and reliable and becomes easier to use, this cult favorite could turn into an OS blockbuster.

• **OpenLinux 2.2**; \$50 street; Caldera Systems; 888/465-4689; www.calderasystems.com

PRODUCT INFO NO. 758

• **Red Hat Linux 6**; \$80 street; Red Hat; 888/733-4281; www.redhat.com

PRODUCT INFO NO. 759

OPERATING SYSTEMS



Linux-Mandrake 6.0



Mac OS

SCOTT PRIVE

HOW DO YOU OPERATE?

SCOTT PRIVE completed his transition from Windows to Linux when he finally replaced his Winmodem with something that actually worked with Linux. He now uses Mandrake, which is essentially the same as Red Hat Linux. Still, he says he couldn't do without some programs that don't work with Linux.

"I couldn't give up software like Macromedia Flash and Adobe Premiere...so I bought a Mac," says Prive, a quality-assurance engineer from Tyngsboro, Massachusetts. He also refused to give up certain Windows games—but that doesn't mean he's still tied to Windows. Prive runs his games in Linux using Wine to emulate Windows.



BeOS

The Funky Alternative

IF WINDOWS IS an 800-pound gorilla and Linux is a penguin, then Be, Inc.'s BeOS is...well, a chameleon. It began life as the operating system for a now-defunct computer called the BeBox, then nearly became the next generation of the Mac OS when Apple contemplated purchasing it in 1996. Today, Be targets its OS at multimedia professionals but also touts it for supercheap devices aimed at computing neophytes.

In short, BeOS is tough to pin down. Nevertheless, this \$70 operating system, available in a PC-compatible edition since last year, inspires a fervor among its users. BeOS fans lavish praise on its simplicity, power, speed, and reliability—

and judging from our tests of BeOS release 4.5, their enthusiasm is justified. But unless more hardware and software vendors jump on the BeOS bandwagon, this OS may die on the vine.

While Linux is famously tough to install, BeOS is miraculously easy. In our tests on a Pentium III-500-based Dell OptiPlex PC with 64MB of RAM, the whole process took 10 painless minutes. The OS silently autoconfigured itself for the PC's graphics card, monitor, and sound card; all we had to do was select a disk partition for the installation and tell the setup program to configure BeOS to dual-boot with Windows.

With a stylish look and feel reminiscent of the Mac OS, the BeOS user interface doesn't ape Windows as Linux's KDE and GNOME environments do. Still, Windows veterans won't need much time to adjust to it. For instance, although BeOS's Deskbar program

launcher/window manager sits in the upper right-hand corner of the screen, it's a not-so-distant relative of the Windows taskbar. You can even drag the Deskbar to the bottom of the screen and stretch it out horizontally.

BE NICE

THE OS ALSO SPORTS some nifty innovations. For example, e-mail and a simple address book are tightly integrated into the file system: Because your in-box, out-box, and contact list are BeOS folders, you work with them right on the desktop, using the same drag-and-drop tools that control other files.

Be, Inc. contends that BeOS is an ideal platform for multimedia developers—an assertion based, in part, on the OS's highly optimized, multithreaded architecture. And indeed, it proved fast and hiccup-free in our tests. We loaded the screen with bouncing balls and spinning teapots (the OS provides a bevy of animated demos), started a file download in the background, and then went to ►

WHAT EVER HAPPENED TO OS/2?

"IT'S LIKE, 'We've got this bastard kid, let's keep him locked in a closet someplace—I don't want the relatives to see him.'"

That's Tim Bryce, editor of the independent online newsletter OS/2 Connect and an OS/2 user since 1989, describing his favorite operating system.

It's a little-known fact (a very little-known fact) that you can still buy OS/2 Warp and run it on your PC. The most recent version of the client software is version 4, which costs about \$259

direct from IBM. Sure, it hasn't been upgraded in years, and OS/2 applications are scarce, but that doesn't deter devotees like Bryce. In fact, in October, Warpstock 99 will invade Atlanta.

Bryce says that two years ago, when he tried to buy a new IBM ThinkPad directly from IBM, he was shocked to learn that the company refused to preload OS/2 on the notebook. "They said no way. They wouldn't preload OS/2, their own product. It's sad."

IBM OS/2 marketing manager Al Wissinger asserts that OS/2 is



still part of Big Blue's enterprise computing vision. "We've got a strategy with our corporate customers where we provide updates through a subscription service," he says. "We're going to support those corporate customers for some time to come, so home users could also continue to get support and updated drivers."

But there are no big plans to make OS/2 Warp a serious candidate for your desktop PC's operating system. Wissinger says that IBM doesn't want to

compete with Windows or Linux. Instead, the company is concentrating its OS/2 efforts on server software.

Bryce isn't worried. He says he gets along fine with OS/2, despite the fact that few applications are written for it anymore. And he has a dirty little secret: He uses partition software so he can run Windows 95 on the same PC he uses to run OS/2. "It's so my kids can play their Windows games," he insists. "That's the only time we use Windows." —Glenn McDonald

YOU WON'T FIND THE FASTEST GROWING DOCUMENT OUTPUT COMPANY UNDER X.



(You won't find it under C or M for that matter, either.)

Here's an interesting fact. The name of the fastest growing major document output company isn't Xerox, Canon, or Mita. It's Savin. That's right, Savin.

After all, Savin not only has the award-winning, multi-functional digital imaging systems today's networked offices require, we're also committed to becoming the fastest, most responsive name in the business. With smart, energetic, highly-trained Savin professionals willing to do whatever it takes to give you the satisfaction and service you deserve.

To find out more about Savin's full line of black & white and full-color digital imaging solutions, as well as our unshakable commitment to service, contact us at 1-800-234-1900 or www.savin.com. Or look in your card file under S.



savin[®]
WE'VE GOT WHAT IT TAKES TO WIN YOU OVER[™]
SAVIN CORPORATION, 333 LUDLOW ST., STAMFORD, CT 06904

BTA 1999 CHANNEL'S CHOICE AWARD
DIGITAL CONNECTED PRODUCTS

Circle 130 on card or go to www.pcworld.com/productinfo

©1999 Savin Corporation

BEING ALL THAT IT CAN BE

- 1 The Web browser that comes with BeOS is easy to use but limited in scope—it does not support Java.
- 2 The Deskbar is Be's counterpart to Windows' taskbar—the Be logo corresponds to the Start button.
- 3 The BeOS e-mail client is integrated into the operating system.
- 4 Folders and drive icons look even slicker in BeOS than in Windows or the Mac OS.

work on a word processing document. Every task ran smoothly, without any crashes or obvious slowdown.

NO OS IS AN ISLAND

AS APPEALING as BeOS is in many respects, an OS is only as good as the products it works with. The existing BeOS programs are mostly exotic utilities and narrowly focused tools; we found only a smattering of truly major applications, and the emphasis is on multimedia and graphics. No full-blown office suite is available. The OS's bundled Web browser, NetPositive, works well, but it supports JavaScript only in "experimental" form and Java not at all.

With few exceptions, the only hardware devices that work with BeOS are those for which Be has written drivers. A handful of third-party companies write additional drivers for BeOS. Chances are good that one or more of your peripherals won't work with BeOS. (For a list of compatible products, see www.be.com/support/guides/beosreadylist_intel.html.) At press time, BeOS didn't support graphics chips such as ATI's Rage 128, Matrox's MGA-G400, and S3's Savage4; and printer support was limited to Hewlett-Packard LaserJets and compatibles, some PostScript-compatibles, and a handful of Epson ink jets.

There's still no mad rush of major vendors to support BeOS, but a few are taking baby steps in that direction. A BeOS edition of Netscape Communicator is in the works, based on the open-source code for Communicator 5 (aka Mozilla). And Canon is developing a driver for its ink jet printers, the first instance of a

major peripheral manufacturer striving to make its products BeOS-compatible.

For the first time, several vendors, including AST and IDot.com, are bundling BeOS with new systems. Most intriguingly, Microworkz.com uses a customized version of the OS to power its \$199 IToaster, a limited-function unit aimed at Web newbies. Be, Inc. is trying to sell manufacturers of other inexpensive "appliance" devices, such as TV set-top boxes, on BeOS's benefits.

Meanwhile, the company hopes that the arrival of faster Net connections will spur the adoption of BeOS by creative types who produce video, audio, and animation for the Web. Bottom line: This impressive OS with a checkered past may have an equally checkered future.

• **BeOS 4.5:** \$70 street; Be, Inc.; 800/491-2818; www.be.com

PRODUCT INFO NO. 760

THE NEXT BATTLEFRONT

WITH BEOS AND LINUX taking aim at Windows, it's an exciting time to be in the market for an operating system. And though we recommend sticking with

IF IT RESEMBLES ANYTHING, BeOS 4.5 looks and feels like the Mac OS. It's highly intuitive and extremely powerful to use.



Microsoft's products for now, the company obviously can't rest on its laurels.

The next serious threat to Windows' dominance may be Windows emulators. Since 1993, over 140 developers have been working on the Wine project. Their goal: to create software that will enable Linux to run Windows programs such as Microsoft Office. Linux users can already take advantage of Wine tools to run some Windows programs; for more information, see www.winehq.com.

Finally, something is brewing Down Under. A company called Trumpet Software is developing Petros, a 32-bit OS that, unlike Linux and BeOS, will run Windows apps. Essentially, Petros, like Wine, is a Windows emulator. Currently it's in alpha stage, so it has a long way to go. But if it catches on, it could pose a new challenge to Windows.

Harry McCracken is a senior writer and Scott Spanbauer a contributing editor for PC World. Glenn McDonald is a frequent contributor to the magazine; Carol Pragides is a copy editor and Anush Yeghazarian a senior associate editor. ■



Trouble mounting?

In a world where Windows and Macintosh incompatibility causes endless problems, DataViz offers a little help. MacOpener®. A convenient utility that surmounts all obstacles when your PC needs to read, write and format Macintosh disks.

With MacOpener installed on your PC, reading and writing files on a Mac-formatted disk, cartridge or CD is a breeze. MacOpener lets you open the disk on your PC just as if it were formatted for Windows. You can then view the contents and copy files to and from the disk from any Windows application. MacOpener automatically adds the right PC extension to Macintosh files, so you can launch a Windows application by simply clicking on the file. It even lets you format the Mac disk just as if it were a PC disk. How's that for trouble free performance?

At DataViz, solving PC to Mac compatibility problems is our business. As well as MacOpener, we offer Conversions Plus®, the premier file conversion program that translates hundreds of different file formats between PC applications or Macintosh and PC applications. Quickly and accurately. And offers over 1,000 file translation combinations, to solve almost any file conversion needs.

So discover for yourself that with DataViz, no file compatibility problems are insurmountable.

For answers to all your Mac to PC disk and file compatibility needs, call us at 1-800-270-0030 Ext 121 or visit our web site at <http://www.dataviz.com/mopcw>



DATAVIZ®
Compatibility. Instantly.

Runs on Windows 3.1, Windows 95 & 98, Windows NT.

Available at

COMPUSA
The Computer Superstore

MICRO CENTER
The Computer Superstore

Fry's

All product names are trademarks of their respective holders.

Circle 176 on card or go to www.pcworld.com/productinfo



Save \$400

on any of these notebooks when you sign up for CompuServe Internet Service for just \$21.95 a month! Call today for details.

Base price includes:

PRESARIO 1800T-C400 INTERNET NOTEBOOK PC

Mobile Intel® Celeron™ Processor, 400 MHz
14.1" TFT Active Matrix Display
64 MB SyncDRAM expandable to 128 MB
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI)³
Ultra Hi-Capacity Lilon Battery
128 KB Integrated "On-chip" cache
Microsoft® Featured Home Collection
Microsoft Windows®98

\$1599⁺ AFTER REBATE
\$1999
-\$400 Rebate⁴
\$1599

Personalize by choosing:

128 MB SyncDRAM: Add \$200
6.4 GB UltraDMA Hard Drive¹: Add \$100
Quick Dock: Add \$99

PRESARIO 1900T-C400 INTERNET NOTEBOOK PC

Mobile Intel Celeron Processor, 400 MHz
13.3" TFT Active Matrix Display
128 MB SyncDRAM expandable to 192 MB
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
256-bit AGP Accelerated Graphics
with 2.5 MB VRAM
56K ITU V.90 Modem (PCI)³
Ultra Hi-Capacity Lilon Battery
128 KB Integrated "On-chip" cache
Microsoft Featured Home Collection
Microsoft Windows®98

\$1799⁺ AFTER REBATE
\$2199
-\$400 Rebate⁴
\$1799

6.4 GB UltraDMA Hard Drive¹: Add \$100
4X DVD-ROM Drive⁵: Add \$150
Extra AC Adapter: Add \$49

Y2K

COMPAQ PRODUCTS ARE YEAR 2000 HARDWARE COMPLIANT.⁶



**PRESARIO 1800T
INTERNET NOTEBOOK PC**



**PRESARIO 1900T
INTERNET NOTEBOOK PC**

All prices shown are Compaq Direct selling prices and do not include applicable sales tax and shipping, are valid in the U.S. only and are subject to change or cancellation without notice. Not all models available in retail stores. ¹Illustrations may not accurately represent exact configurations priced. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. ²System tested using NSTL YMARK2000 hardware test. Non-compliant third-party software/hardware products may affect roll-over results. For more details, see www.compaq.com/year2000. For hard drives, GB=billion bytes. ³ITU V.90 modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. ⁴24X Max CD-ROM data transfer rates may vary from 1500 to 3600 Kbps. ⁵4X DVD-ROM Drives run at a higher maximum transfer rate of up to 5400 Kbps compared to 2nd Generation DVD-ROM Drives which run at a maximum transfer rate of up to 2705 Kbps. ⁶\$400 mail-in rebate from CompuServe with purchase of a qualifying Compaq Presario notebook from 7/25/99 to 10/9/99 and contract commitment to a 36-month subscription for CompuServe 2000 Internet

Attention all modem-plugging, drive-swapping, peripheral-obsessed notebook users: Your all-in-one notebook is ready.

The Compaq Presario 1800T Series Internet Notebook PC.

While it may be impossible to be all things to all people, there now exists a notebook which is all things to certain people.

People whose pulses race at the mere mention of features like Accelerated 3D Graphics, JBL Pro Audio, and a fifteen-inch display. People who have been itching for bonuses like one-touch Internet access, DVD, and a superfast 56K modem. People who get an extra charge out of knowing that they can get all this stuff built into one sleek notebook.

This little powerhouse also comes with your choice of a blazing fast Intel® Celeron™ or Pentium® II processor, making it one of the highest performance PCs to ever hit the road.

The all-in-one Compaq Presario 1800T Series Internet Notebook PC. The only thing missing from it is you.

PRESARIO 1900T-P11 366 INTERNET NOTEBOOK PC	PRESARIO 1800T-P11 400 INTERNET NOTEBOOK PC	PRESARIO 1900T-P11 400 INTERNET NOTEBOOK PC	PRESARIO 1800T-P11 400 INTERNET NOTEBOOK PC
Intel Mobile Pentium® II Processor, 366 MHz	Intel Mobile Pentium II Processor, 400 MHz	Intel Mobile Pentium II Processor, 400 MHz	Intel Mobile Pentium II Processor, 400 MHz
13.3" TFT Active Matrix Display	15.0" TFT Active Matrix Display	13.3" TFT Active Matrix Display	15.0" TFT Active Matrix Display
64 MB SyncDRAM expandable to 192 MB	64 MB SyncDRAM expandable to 128 MB	64 MB SyncDRAM expandable to 192 MB	64 MB SyncDRAM expandable to 128 MB
4.8 GB UltraDMA Hard Drive ¹	4.8 GB UltraDMA Hard Drive ¹	6.4 GB UltraDMA Hard Drive ¹	6.4 GB UltraDMA Hard Drive ¹
4X DVD-ROM Drive ²	24X Max CD-ROM Drive ³	4X DVD-ROM Drive ²	4X DVD-ROM Drive ²
256-bit AGP Accelerated Graphics with 2.5 MB VRAM	ATI Rage LT Pro Hardware Accelerated 3D Graphics with 8 MB Video Memory	256-bit AGP Accelerated Graphics with 2.5 MB VRAM	ATI Rage LT Pro Hardware Accelerated 3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI) ⁴	56K ITU V.90 Modem (PCI) ⁴	56K ITU V.90 Modem (PCI) ⁴	56K ITU V.90 Modem (PCI) ⁴
Ultra Hi-Capacity Lilon Battery	Ultra Hi-Capacity Lilon Battery	Ultra Hi-Capacity Lilon Battery	Ultra Hi-Capacity Lilon Battery
256 KB Integrated "On-chip" cache	256 KB Integrated "On-chip" cache	256 KB Integrated "On-chip" cache	256 KB Integrated "On-chip" cache
Microsoft Office 2000 SBE ⁵	Microsoft Featured Home Collection	Microsoft Office 2000 SBE	3.5" 120/1.44 MB High Capacity SuperDisk™ Drive
Microsoft Windows98	Microsoft Windows98	Microsoft Windows98	Microsoft Office 2000 SBE + Windows98
\$1999⁺ <small>AFTER REBATE \$2399 -\$400 Rebate⁶ \$1999</small>	\$2199⁺ <small>AFTER REBATE \$2599 -\$400 Rebate⁶ \$2199</small>	\$2299⁺ <small>AFTER REBATE \$2699 -\$400 Rebate⁶ \$2299</small>	\$2599⁺ <small>AFTER REBATE \$2999 -\$400 Rebate⁶ \$2599</small>
128 MB SyncDRAM: Add \$200	128 MB SyncDRAM: Add \$200	Quick Dock w/integrated ethernet: Add \$129	128 MB SyncDRAM: Add \$200
Extra AC Adapter: Add \$49	6.4 GB UltraDMA Hard Drive ¹ : Add \$100	10.0 GB UltraDMA Hard Drive ¹ : Add \$150	Compaq Value Case: Add \$39
Extra Ultra Hi-Capacity Lilon Battery: Add \$129	Mobility Auto Adapter: Add \$99	Extra Ultra Hi-Capacity Lilon Battery: Add \$129	Extra Ultra Hi-Capacity Lilon Battery: Add \$129

1-800-390-3272 www.compaq.com

Buy direct from Compaq, or purchase yours at your favorite retailer.

COMPAQ

Compaq Retailers

ABC Warehouse, American Appliance, American TV, Best Buy, Big City Express, Brandsmart USA, Buy.com, CDW, Circuit City, CompUSA, CompUSANET.com, Computer Town, Conn's, DataVision, Fred Meyer, Fry's Electronics, the good guys!, h.h. Gregg, Insight, J&R Computer World, Micro Center, MicroWarehouse, Multiple Zones, Nationwide Computers & Electronics, Nebraska Mega Mart, Office Depot, OfficeMax, Onsale.com, Outpost.com, PC Connection, PC Mall, PC Richard & Son, PC Warehouse, RadioShack, RCS Computer Experience, Sears, Shopping.com, Staples, State Street Discount, The Wiz, Tiger Direct, Tops Appliance City, ValueAmerica.com
Visit a Compaq **Built For You Custom PC Center** at select retailers highlighted in bold above.

Service at the monthly rate of \$21.95. Completed mail-in rebate form, original purchase receipt, and a valid major credit card are required. Service must be initiated and CompuServe Terms of Service must be accepted within 30 days of purchase. Mail-in rebate materials must be received by 11/30/99. Offer valid in the U.S. only and void where prohibited by law. You must be 18 years or older. Limit one per household. Additional terms and conditions apply. Full details are available in store or by calling 1-800-390-3272. One year parts and labor. Labor for notebooks is pick-up service. Compaq, the Compaq logo, and Presario are registered in the U.S. Patent and Trademark Office. Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel, the Intel Inside Logo, and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. Product and company names mentioned herein may be trademarks and/or registered trademarks of other companies. Call Compaq Monday-Friday, 7:00am-11:00pm (CT). ©1999 Compaq Computer Corporation. All rights reserved.

CyberMax 3Daredevils Take-off with Athlon

AMD ATHLON 600 **55.6**
PENTIUM III 600 **44.7**†

**Everything You
Need To Fly Away!**

CyberMax® 3Daredevils now fly with AMD's Athlon™ processor with enhanced 3DNow!™ Technology, running at speeds of up to 600MHz and available with a variety of color printers, scanners and digital cameras.

The 3Daredevil K7-550

- ♦ The 550MHz AMD Athlon™ w/ enhanced 3DNow!™ Technology
- ♦ K7 MB featuring AMD-750 Chipset & 200MHz Front Side Bus
- ♦ 128MB SDRAM ♦ 13GB Ultra ATA Hard Drive
- ♦ S3® Savage4 32MB AGP Graphics Accelerator
- ♦ CyberMax 19" (26dp-18" VA) Color Monitor
- ♦ 8x Max Variable DVD-ROM (32x Max Variable CD-ROM)
- ♦ V.90 Standard 56K Voice/Fax Modem w/ Speakerphone
- ♦ Aureal Vortex2 PCI Sound Card w/ A3D 2.0 Technology
- ♦ Altec Lansing ACS90 Speakers
- ♦ CorelWordPerfect Office 2000 Standard & Max's Enthusiast Pack
- ♦ 3 Year Limited Warranty

\$1499
business lease \$54/mo*
Options \$100†



Ask about the Voodoo 3™, the latest in 3Dfx™ technology—it's sure to cast a spell on you!

For our complete product line visit us @
cybermaxpc.com

The Entrepreneur Series

CyberMax
Computer, Inc.
We fit your life.

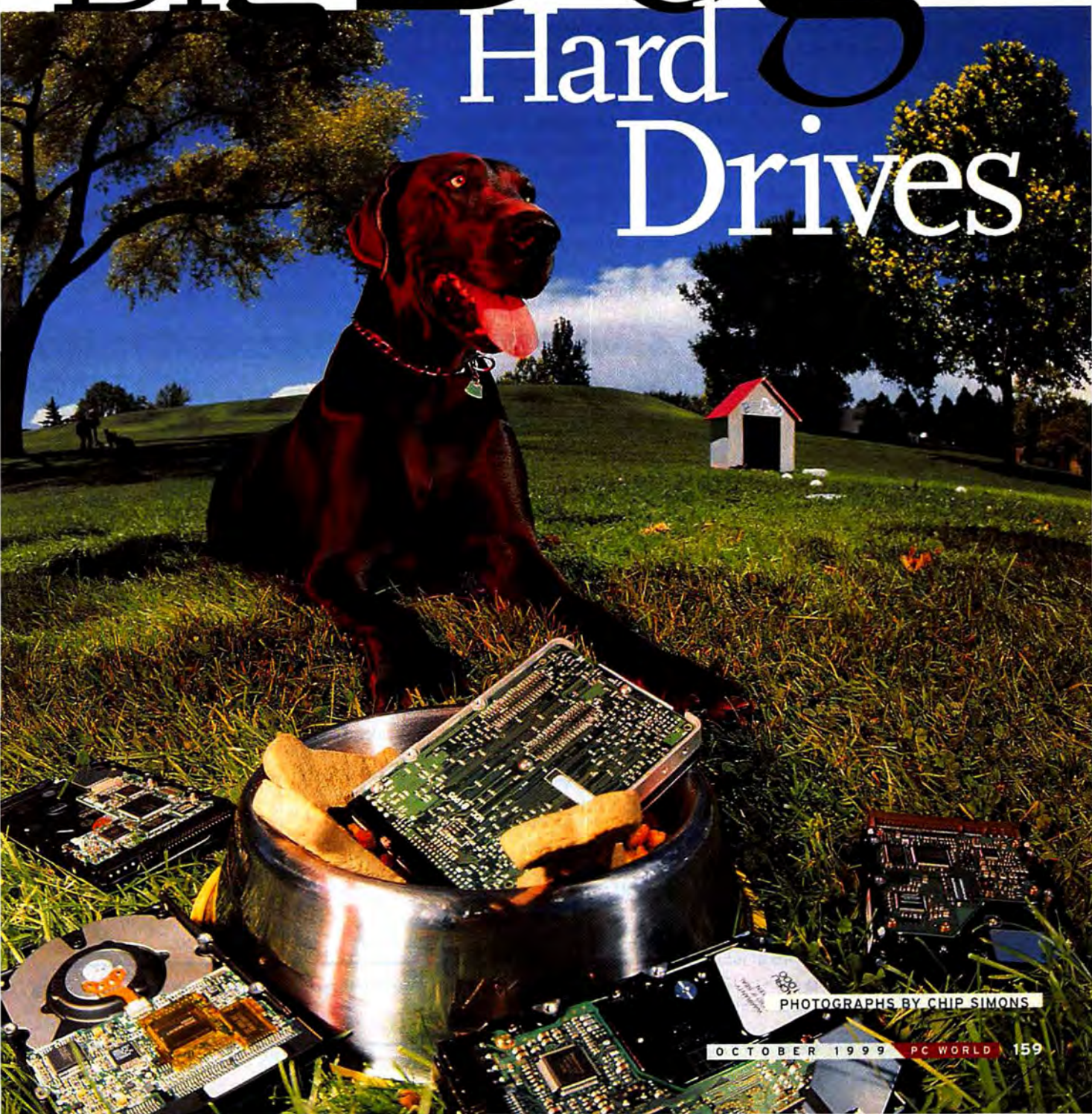
1-800-437-4596

The Enthusiast Series

†Benchmark system configuration: 3Dfx Voodoo3 3000, Western Digital Expert 41800, Single PC100 128MB DIMM, Aureal Vortex2 Audio, Toshiba 6x DVD SD-M1212, Windows 98SE, Direct X 6.1A, 3Dfx Voodoo3 Driver Rev 1.01.
The AMD Athlon™ processor based system: Microstar MS-6167, Rev OE, Bios Rev 1.01B11, AMD Bus Mastering EIDE Driver v1.06, AMD AGP miniport 4.44, Intel® Pentium® III processor based system: Biostar M6TBA REV 1.3, Bios Rev TBA0224D.
CyberMax Computers, Inc. 11300 Wilshire Blvd., Suite 1000, Culver City, CA 90230. Tel: (310) 551-1130. Fax: (310) 551-1131. Website: www.cybermaxpc.com
© 2000 CyberMax Computers, Inc. All rights reserved. CyberMax, 3Daredevils, and the CyberMax logo are trademarks of CyberMax Computers, Inc. All other trademarks are the property of their respective owners.
AMD, Athlon, 3DNow!, and the AMD logo are trademarks of AMD. S3, Savage4, and the S3 logo are trademarks of S3. V.90, V.90 Standard, and the V.90 logo are trademarks of VLSI Technology. Aureal, Vortex2, and the Aureal logo are trademarks of Aureal Semiconductor. Altec Lansing, ACS90, and the Altec Lansing logo are trademarks of Altec Lansing. Corel, WordPerfect, and the Corel logo are trademarks of Corel. Microsoft, Windows, and the Microsoft logo are trademarks of Microsoft. Intel, Pentium, and the Intel logo are trademarks of Intel. Toshiba, and the Toshiba logo are trademarks of Toshiba. Western Digital, Expert, and the Western Digital logo are trademarks of Western Digital. 3Dfx, Voodoo3, and the 3Dfx logo are trademarks of 3Dfx. All other trademarks are the property of their respective owners.

Loaded with up to 27.2GB, today's hard drives make last year's models look like the runts of the litter. But the speed boosts promised by new technologies are more bark than bite. • BY STAN MIASTKOWSKI

Big Dog Hard Drives



PHOTOGRAPHS BY CHIP SIMONS

LIKE weeds, kids, and puppies, hard drives just keep getting bigger. In our roundup over a year ago, we called 16GB drives Godzilla-size. Nowadays, a 16GB drive is considered more your average lizard.

This year, we tested 12 products from Fujitsu, IBM, Maxtor, Quantum, Seagate, and Western Digital that offer large capacities of up to 27.2GB. Sure, you can still buy 8GB or 13GB drives that cost as little as \$105—a great value if you need only a modest amount of disk space and are on a tight budget. But if you can afford to fork out about \$350, you can get a terrifically fast hard drive with about 20 gigs. And as we went to press, IBM announced the next step up: a \$420 37GB Deskstar hard drive. Although it wasn't available in time for testing, it should be in stores nationwide before the holidays.

In addition to holding more disk space, hard drives are getting cheaper. For about the same price you paid last year (some \$250 to \$300), you can now get a faster drive with almost three times the capacity. In 1998, prices per GB ranged between \$33 and \$43; today, Fujitsu offers two of its drives at bargain prices of \$9 and \$10 per GB. Even the unit with the highest per-GB price in this review—Quantum's Fireball Plus KA—still runs just \$22 per GB.

But more than capacity sets this year's drives apart from their ancestors. All the ones here feature a new, higher-speed interface, known interchangeably as UltraDMA/66 or UltraATA/66. Theoretically, it should deliver twice the speed—up to 66.7 megabits per second—as that of the older UltraDMA/33 interface, which has been the standard on nearly all hard drives for the past three years or so. However, in our tests, some performance issues and lack of hardware support prevented UltraDMA/66 from keeping pace with expectations (see "UltraDMA/66: Where's the Boost?" on page 162).

PACKING IT IN

THANK GOODNESS for progress. Research and development efforts at major hard-drive manufacturers such as IBM and Maxtor have made it possible to

pack many more bits of data onto the magnetic-coated metal platters that store them. Researchers call the measurement of that distribution "areal density," and this density has increased twentyfold over the past few years.

But you ain't seen nothing yet. Earlier this year, Seagate lab analysts successfully tested technology that could result in hard drives that hold 200GB to 250GB of data in a package the same size as some of the products reviewed here. These truly gargantuan devices probably won't hit stores for at least another two years.

Manufacturers have also made drives simpler by incorporating fewer moving parts that can potentially break down. As a result, today's hard drives work very reliably. The rare glitch, when it appears, usually arises during the installation process. So if your drive installs smoothly, it will likely hum along trouble-free for years. In fact, hard-drive companies expect most drives to have a service life of about five years, which may be longer than you'll keep your current computer.

NEEDLESS GIGS?

AT FIRST BLUSH, it's hard to imagine how you'd ever use 20GB of disk space. Not too long ago, we were living comfortably on 2GB to 4GB drives (and some of us still do). But like work, which has an insidious way of expanding into all your free time, data will eventually grow to fill every available space on your hard drive. Software developers also aren't going out of their way to create lean applications. Load Windows 98, Office 2000, and a handful of your favorite programs on your PC, and suddenly you've already lost a gig or two. The files you create with these programs, especially formula-intensive Excel spreadsheets, aren't exactly small, either.

In addition, the popularity of multimedia applications has generated perhaps the greatest need for disk space. For example, a single full-fidelity, 3-minute audio clip already eats up about 40MB of space. And if you're one of the millions of PC users who download MP3 files off the Web, having a colossal hard drive allows you to build a vast music collection.

HARD DRIVES

2700-RPM HARD DRIVE	Street price (7/20/99)	Disk capacity (GB)	Price per GB	Support policies	
				Parts/labor warranty (years)	Weekday/Saturday support hours
Fujitsu MPD3137AH 800/591-5924 www.fujitsu.com	\$136	13.7	\$10	3/3	16/8
IBM Deskstar 22GXP 888/426-5214 www.storage.ibm.com	\$305	22	\$14	3/3	12/None
 Maxtor DiamondMax Plus 5120 800/262-9867 www.maxtor.com	\$350	20.4	\$17	3/3	12/None
Quantum Fireball Plus KA 800/624-5545 www.quantum.com	\$399	18.2	\$22	3/3	12/None
Western Digital WD Expert 18GB 800/275-4932 www.westerndigital.com	\$309	18	\$17	3/3	9/8
5400-RPM HARD DRIVE					
Fujitsu MPD3173AT 800/591-5924 www.fujitsu.com	\$159	17.3	\$9	3/3	16/8
IBM Deskstar 25GP 888/426-5214 www.storage.ibm.com	\$305	25	\$12	3/3	12/None
Maxtor DiamondMax 6800 800/262-9867 www.maxtor.com	\$399	27.2	\$15	3/3	12/None
Quantum Fireball CR 800/624-5545 www.quantum.com	\$219	13	\$17	3/3	12/None
Seagate Medalist 17242 877/271-3285 www.seagate.com	\$205	17	\$12	3/3	10/None
Seagate U4 877/271-3285 www.seagate.com	\$105	8.6	\$12	3/3	10/None
 Western Digital WD Caviar 20.4GB 800/275-4932 www.westerndigital.com	\$279	20.4	\$14	3/3	9/8

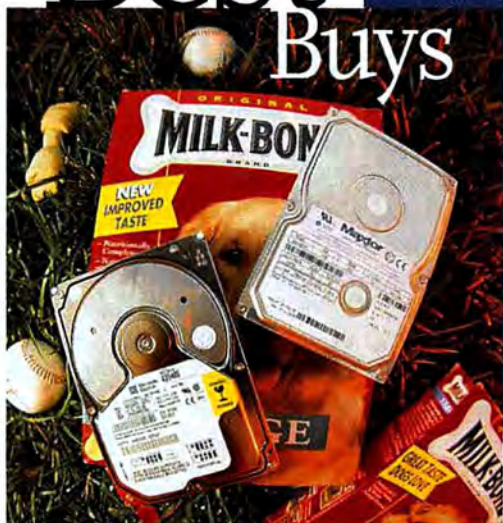


Best Buy

• Yes ○ No

¹ None of the vendors here provides tech support on Sundays.

Best Buys



THIS YEAR'S hard drives raise the bar in capacity and performance. Picking our Best Buys was tough, but in the end, two devices came out ahead: **Maxtor's 20.4GB DiamondMax Plus 5120** (\$350) wins in the high-performance 7200-rpm category, while **Western Digital's 20.4GB WD Caviar** (\$279) takes top honors in the 5400-rpm camp.

All the drives in our roundup offer good to excellent performance, but Maxtor's DiamondMax Plus was blisteringly fast at copying files. In fact, it copied data more than twice as fast as any of its competitors. What's more, the company provides first-rate support, including extensive online information, a three-year parts and labor warranty, and an offer to replace your drive if problems develop—no questions asked. Installing Maxtor's drives is a breeze, too, thanks to its graphically oriented setup software and a handy, illustrated poster detailing the installation process.

If you want to save \$71 and can live with slightly slower—but still adequate—performance, go with the Western Digital WD Caviar. It provides the same amount of storage space as the Maxtor DiamondMax Plus and comes with one of the best manuals among the drives we tested, plus no-nonsense installation software.

Digital photos also eat up megabytes, while video files, of course, consume far more. Using a new digital camcorder and your computer to edit your next Academy Award-winning movie will require the biggest hard drive you can get hold of. Digital video usually gobbles up 3.6MB

per second, so you could conceivably take up a gig of space for a 4-minute video. Even compressed video, such as the MPEG-2 file format used in DVD movies, takes up oodles of room on a disk.

Given the megabyte-hogging nature of today's applications and files, you could quickly run out of disk space—even on one of the drives reviewed here. For exam-

ple, a midrange 18GB drive would hold about four full-length MPEG-2 videos or nearly 300 albums in MP3 format.

THE SPIN FACTOR

THE FASTER A DRIVE spins, the better its performance. This is because the faster the metal platters (which hold data) move under the magnetic heads that read and write data, the quicker data can be ►

FEATURES COMPARISON

Toll-free phone/Web support	Scorecard				Comments	Product info number ²
	Ease of installation	Bundled software	Documentation	Support policies and phone tech support		
●/●	Poor	None	Poor	Average	Chart's lowest-priced 7200-rpm drive has poor documentation. This company is only one here that doesn't bundle software—you get an installation utility from its Web site.	601
●/●	Very good	Very good	Very good	Very good	Speedy overall performance, moderate price per GB, and relatively easy installation, despite basic manuals.	—
●/●	Excellent	Excellent	Excellent	Excellent	Fastest performer in our file copy test includes excellent installation help. Company also provides helpful hints and tips on its Web site.	602
●/●	Average	Very good	Average	Very good	Most expensive 7200-rpm drive reviewed performs well but is packaged with mediocre documentation.	603
●/●	Excellent	Very good	Excellent	Excellent	Offers great manuals and decent speed; has above-average cost per GB.	604
●/●	Poor	None	Poor	Average	Offers good combination of price and capacity. Lacks software (though you can download an installation utility from company's Web site).	605
●/●	Very good	Very good	Very good	Very good	Carries great price for its terrific capacity and has smooth installation, but documentation covers essentials only.	—
●/●	Excellent	Excellent	Excellent	Excellent	The highest-capacity drive here performed very well in our tests, but it's the priciest in its class. Also has helpful setup guide.	606
●/●	Average	Very good	Average	Very good	Very expensive considering its small capacity and so-so manuals, which make installation a little tough.	607
●/●	Excellent	Excellent	Very good	Very good	A terrific value—with a fair price per GB—and it includes top-notch installation utilities.	608
●/●	Excellent	Excellent	Very good	Very good	Cheapest drive we tested is easy to install, thanks to instructions printed on the unit and excellent installation software.	609
●/●	Excellent	Very good	Excellent	Excellent	Company provides no-nonsense installation software and helpful tech support, which includes Saturday hours.	610

² For more information about all products in this table, select product info no. 901 or visit www.pcworld.com/product/info.

retrieved from or written to the disk. All the drives we reviewed have an EIDE interface (the connection between a PC's motherboard and its hard drive) and a spin rate of either 5400 or 7200 revolutions per minute. Costlier 7200-rpm drives make the better choice for high-powered PCs with fast CPUs, while more affordable 5400-rpm drives remain sufficient for standard and budget desktops.

Though a higher spin rate often means better performance, our test results show that the speed increase can be marginal. While the 7200-rpm models tended to run faster in our tests than the 5400-rpm units, they did so usually by only 5 to 15 percent, depending on the task. Still, even those moderate percentage gains can make a difference if you frequently work with huge files or applications that read from and write data to the hard drive, such as when you're copying files.

In addition to spin rate, other factors such as the size of a drive's internal cache—the memory used to temporarily store data, for which 512KB or more is ideal—and the drive's firmware (the software in a drive's chip that controls how the device works) also affect a unit's overall performance.

BUMPY UPGRADES?

BEFORE YOU RIP out your old hard drive, be sure you know some of the issues involved with upgrading to a bigger drive. First of all, if your computer was made before January 1998, its BIOS probably doesn't directly support drives larger than 8.4GB. Fortunately, that's not a major problem; most of the hard drives we tested come with software that works around that limitation. With Fujitsu drives, however, you'll need to buy a third-party utility, such as Ontrack's Disk Manager Disk-Go, to access their full capacity when installed in older systems.

To get the best performance possible from your hard drive, we suggest you update your PC's BIOS, regardless of

UltraDMA/66: Where's the Boost?

THE LATEST HARD-DRIVE interface—usually called UltraDMA/66, sometimes UltraATA/66—is supposed to provide twice the maximum, or burst, speed of its predecessor, UltraDMA/33.

But judging from our tests, the new mode doesn't yet deliver on its performance promise.

Although all the drives we reviewed in this roundup support the UltraDMA/66 interface, as of press time we had yet to see an off-the-shelf system that had support for it built into the motherboard. (Support for the new interface depends on the motherboard vendor. So far, the first chip sets to support it are from Intel—the new 810 and another soon to be announced.)

So to test UltraDMA/66's performance abilities, we installed Promise Technology's \$59 Ultra66 card on three test PCs—a Pentium 166, a Pentium II-350, and a Pentium III-450. When we duplicated our copy, search, and defrag tests on two widely used hard drives—IBM's Deskstar 22GXP and Maxtor's DiamondMax 6800—we obtained mixed results.

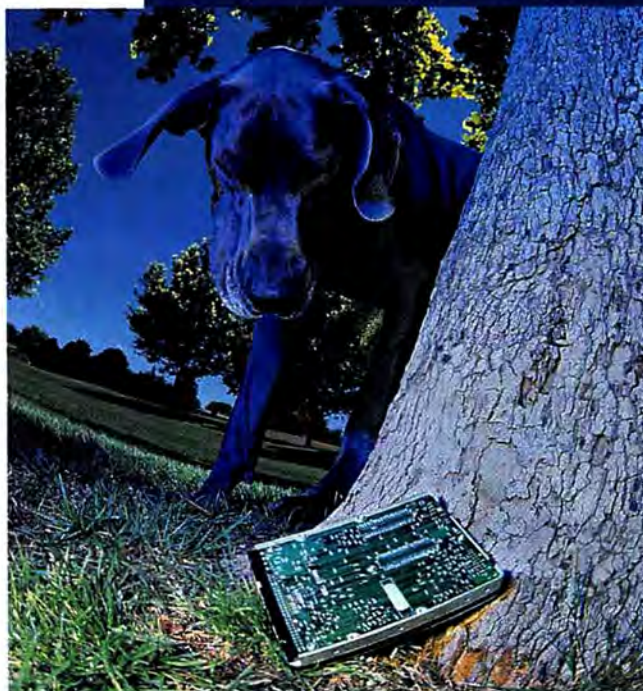
Overall, the Maxtor's performance improved in all tests, delivering boosts between 18 and 66 percent. The IBM's results were all over the map: Although performance rose between 1 and 40 percent in most tests, the Deskstar 22GXP searched files a tad slower on our P-166 test PC and copied files sluggishly on our P-166 and PII-350 test machines. Based on these results, UltraDMA/66 mainly speeds up file copy and defrag, but delivers similar performance in search tasks. According to Maxtor, its drive's performance boost may be due to having one processor

to handle data flow and another to control drive head position. Meanwhile, IBM and Promise report incompatibility issues between the 22GXP and the Ultra66 adapter.

For now, an adapter may not be worth the cost or installation time. Once UltraDMA/66 becomes standard on motherboards, it may improve speeds consistently. Until then, consider investing your money in a bigger or faster drive instead—especially since all the ones we tested work fine with the UltraDMA/33 interface. —Stan Miskowski

• Ultra66 \$59 list; Promise Technology; www.promise.com

PRODUCT INFO NO. 739



when the system was made. Not only will an upgrade ensure that you can directly access large drives, but it'll also guarantee that your PC will be able to handle dates correctly after December 31, 1999.

You can upgrade the BIOS of most recent PCs by downloading software from your computer maker's Web site. For some older systems, especially those over three or four years old, there might not be

an updated BIOS available. In that case you'll need to replace a couple of chips on your PC's motherboard. If neither of those options works out, a company called Unicore (www.unicore.com) provides a variety of BIOS upgrades for older systems.

Like finicky BIOSs, some operating systems don't support today's bigger hard drives: Windows 95 and 98 are fully compatible with drives larger than 8.4GB, but if you have a version of Windows 95 earlier than OSR2 (which was the first ▶

NEC



You're looking for a new computer.
But it's the monitor you'll be looking at.

If you're looking for a new system, remember, the monitor is the component you'll be interacting with most. So why not go with one that sets the standard for screen performance in any environment and for all applications? MultiSync[®] from NEC Technologies. The

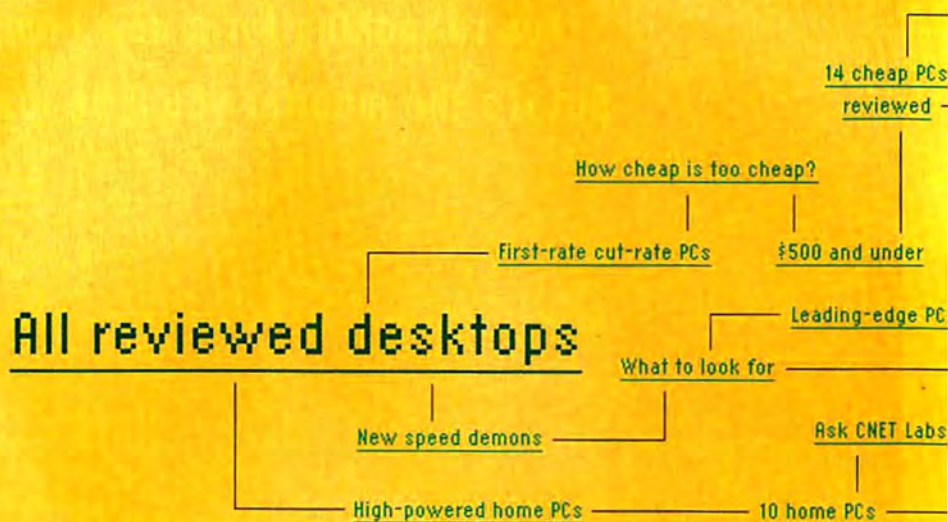
monitors with a heritage of engineering excellence, quality and durability. And from one of the few companies that both design and manufacture their own equipment too. So next time you're looking for a computer, don't forget to look at the monitor.



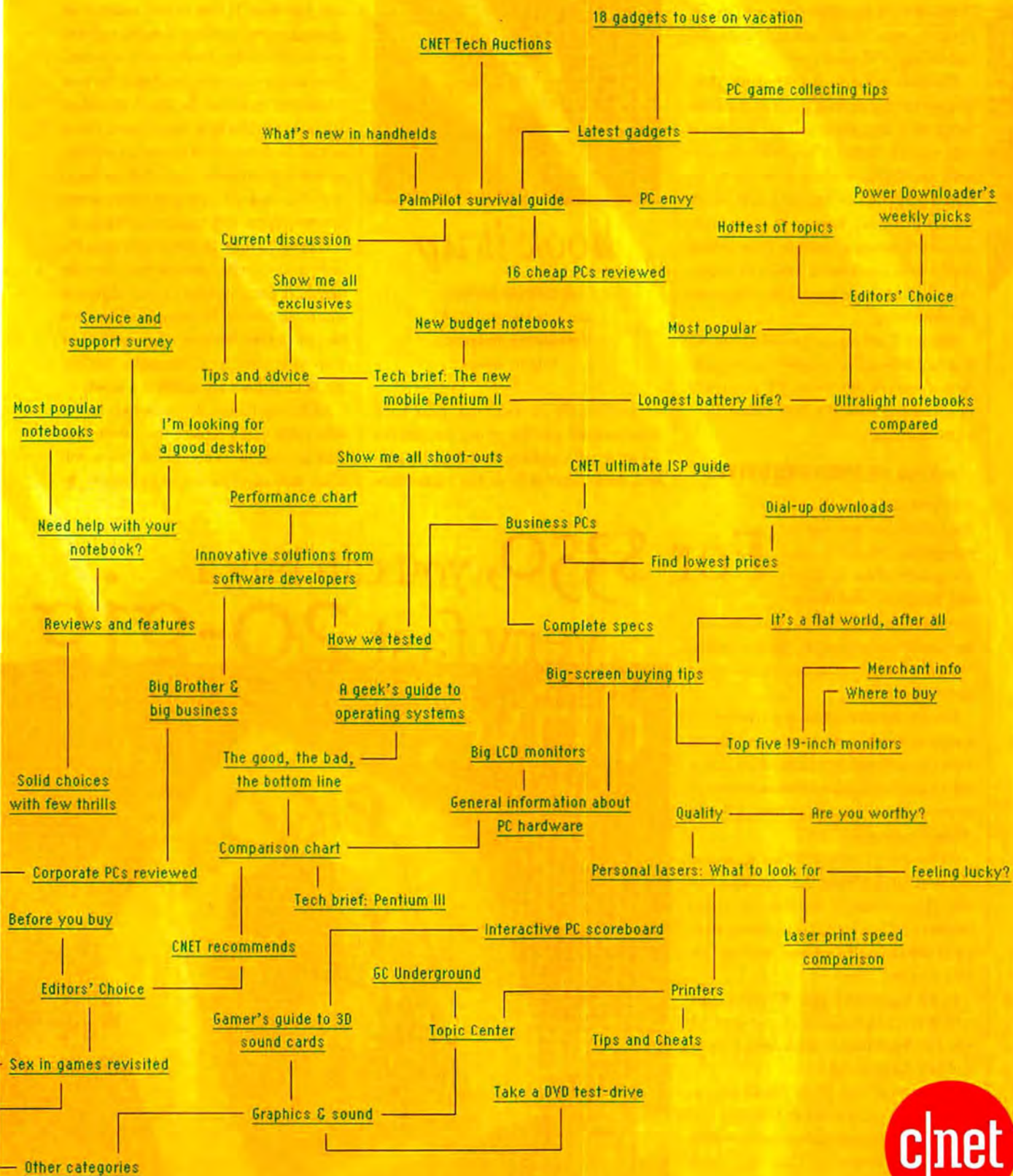
To learn more, call (800) NEC-INFO, or visit us at www.nectech.com.
Circle 203 on card or go to www.pcworld.com/productinfo

BUYING A COMPUTER?

MAYBE YOU SHOULD START AT A PLACE THAT DOESN'T SELL ANY.



CNET, Inc. All rights reserved. CNET and the CNET logo are trademarks of CNET, Inc. All other trademarks are the property of their respective owners. All rights reserved. Jan 1998



The source for computers and technology.™ CNET.com

Windows OS to support the FAT32 file system), you should strongly consider upgrading to Windows 98.

Windows 95 OSR2 and Windows 98 let you use the entire drive space as one drive letter; they also allow you to partition it into smaller drives if you wish. In contrast, pre-OSR2 versions of Windows 95 have a partition size limit of 2.1GB, which means that you'll have to chop up high-capacity drives into multiple drive letters. And when you have a 20GB or larger drive, having ten or more drive letters can be confusing.

Neither Windows 3.1 nor Windows NT 3.51 supports drives bigger than 8.4GB. And if you use Windows NT 4.0, you'll need Service Pack 3 or later to use high-capacity drives.

SIZING UP THE HARD DRIVES

WE EVALUATED all 12 hard drives in four main categories: ease of use (documentation quality and hardware and driver installation), performance, bundled software, and vendor support. We also ranked each drive in its spin rate class—7200 rpm or 5400 rpm.

Finally, for comparison purposes we looked at a high-performance (and expensive) 10,000-rpm SCSI hard drive that is used mainly in high-level workstations or in servers (see "Seagate's Cheetah Bursts Ahead," page 170).

Of the five 7200-rpm drives we looked at, the 20.4GB Maxtor DiamondMax Plus 5120 (\$350) wins our Best Buy with its fast performance, detailed documentation, good selection of software, and terrific tech support.

In the 5400-rpm class, Western Digital's WD Caviar 20.4GB (\$279) gets our vote for its reasonable price, decent speed, and helpful manuals.

In addition to picking Best Buys for each spin rate, we chose the best and worst performers in each of the four main evaluation categories. That way, if you value one criterion over another—say, speed over ease of use—you can focus on the drive that excels in that area.

• **Disk Manager DiskGo** \$60 list; Ontrack Data International; 800/872-2599; www.ontrack.com

PRODUCT INFO NO. 649



hook it up

A Cinch to Set Up:

Seagate Medalist 17242

Headache Inducers:

Fujitsu drives

IF YOU PLAN TO INSTALL your hard drive yourself, you'll want one that you can set up simply, quickly, and easily. In general, the job isn't difficult, but it takes time

and patience. If you're uncomfortable installing new hardware, consider spending the \$50 to \$75 it takes to hire a computer dealer to do the installation for you.

Last year, nearly all the drives we looked at came with brackets that allowed you to mount the drives (all of which ran 3.5 inches wide) into an open 5.25-inch drive bay in your PC. This year, none of the 12 drives reviewed came with mounting brackets.

This isn't a huge problem with most PC cases made over the past few years, because they have extra bays for 3.5-inch drives. If you must mount the drive in a 5.25-inch bay, you'll need brackets. They sell for less than \$3 at most local computer dealers, but buying them separately is a hassle.

All but the Fujitsu drives include an 80-wire cable that'll replace the current 40-wire in your PC. Though the drives will work with older cables, high-density ►

For \$350, you can buy a very fast 20-gig drive.



**WE'RE
INTRODUCING
OUR FASTEST
PC EVER.**



**RELAX.
WE'RE ALSO
INTRODUCING
THE INDUSTRY'S
BEST PRICING.***

THE MILLENNIA BLOWS AWAY THE



**Micron™
Millennia® MAX 600**

\$1844 **\$56/mo.**
Business Lease
48 mos.⁶⁰

- Intel® Pentium® III processor 600MHz
- 128MB 100MHz SDRAM
- 13.6GB Ultra ATA (7200 RPM) hard drive²
- 17" Micron 700Cx (15.9" display)
- NEW 8X DVD-ROM drive
- 16MB nVidia TnT AGP graphics
- PCI 128-voice Wavetable sound
- Monsoon MC200 3-piece speaker system
- 3Com USRobotics V.90 WinModem
- 5-yr./3-yr. Micron PowerSM limited warranty
- Microsoft® Windows® 98
- Microsoft Office 2000 SBE
- Norton AntiVirus
- Micron Easy Internet

AND IF THAT'S NOT ENOUGH, YOU ALSO GET MICRON UNIVERSITY.

With our category-busting promotional price, we're making it even easier to get a hold of one of the fastest desktop PCs on the market today, the Micron Millennia MAX 600. Boasting the power of the Intel Pentium III processor running at 600MHz, it comes fully loaded with everything you need to make the most of the Internet. Including software setting up instant e-commerce. Plus, you also get Micron University, an online tutorial system to enhance your PC skills. Discover the tricks to your favorite software or learn entire new programs. So if you're looking for more than just an overpriced, steroid-packed box, visit www.micronpc.com. And get the complete power package.



© 1999 Micron PC, Inc. All rights reserved. Micron PC, Inc. is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice; prices do not include shipping and handling and any applicable taxes. Seller's return policy does not include return freight and original shipping/handling charges, and all return and warranty periods begin from the date a product is shipped, not when it arrived. A restocking fee may be charged upon the return of a product. All sales are controlled by Seller's current terms and conditions of sale which are available on seller's website or from its sales representatives. On-site service is provided at sole discretion of Micron Computer Services, Inc. A diagnostic determination for on-site service must be made by a Micron service technician prior to the provision of on-site service. On-site service is provided by a third-party service provider under a separate service contract between you and the service provider. Intel, the Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. Microsoft, Windows and

SHOP ONLINE WWW.MICRONPC.COM

MAX 600, AT \$1844, COMPETITION.*



Model Name	Millennia 500	Millennia MAX 600	Millennia MAX 600
Processor	Intel Pentium III processor 500MHz	Intel Pentium III processor 600MHz	Intel Pentium III processor 600MHz
Main Memory	64MB SDRAM	128MB SDRAM	256MB SDRAM
Hard Drive	8.4GB Ultra ATA hard drive ^o	20GB Ultra ATA hard drive ^o	27GB Ultra ATA hard drive ^o
Monitor	17" Micron 700Cx (15.9" display)	19" Micron 700Cx (17.9" display)	19" Micron Trinitron® (18" display)
DVD/CD-ROM	40X var. ^o speed CD-ROM drive	NEW 8X DVD-ROM Drive	NEW 8X DVD-ROM Drive
Graphics	8MB nVidia AGP graphics	32MB nVidia AGP graphics	32MB nVidia AGP graphics
Sound System	PCI 64-voice Wavetable sound	PCI 128-voice Wavetable sound	NEW Aureal Vortex2 SQ2500 audio
Speakers	—	Monsoon MC200 3-piece speaker system	Monsoon MC700 3-piece speaker system
Communication	3Com USRobotics V.90 WinModem	3Com USRobotics V.90 WinModem	3Com USRobotics V.90 WinModem
Micron University	1 year-free ^a online training	1 year-free ^a online training	1 year-free ^a online training
Warranty	5-yr./3-yr. Micron Power limited warranty	5-yr./3-yr. Micron Power limited warranty	5-yr./3-yr. Micron Power limited warranty
Software	Microsoft Windows 98 Microsoft Office 2000 Small Business Suite Norton AntiVirus	Microsoft Windows 98 Microsoft Office 2000 Small Business Suite Norton AntiVirus	Microsoft Windows 98 Microsoft Office 2000 Small Business Suite Norton AntiVirus Micron Easy Internet
Included	3.5" floppy drive	3.5" floppy drive	3.5" floppy drive 250MB Iomega Zip drive
Factory Direct Price	\$40 ^{oo} /mo. ^{Business Lease 48 mos.¹⁴} \$1298	\$67 ^{oo} /mo. ^{Business Lease 48 mos.¹⁴} \$2192	\$87 ^{oo} /mo. ^{Business Lease 48 mos.¹⁴} \$2868



Millennia MAX 500
June '98



the Windows logo are registered trademarks of Microsoft Corporation. Product names of Micron products are trademarks or registered trademarks of Micron Electronics, Inc. Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies. Note: Advertised configurations may differ from award-winning configurations. ^oAll hard drive sizes calculated with 1GB equal to 1 billion bytes. ^oCD-ROM speeds: 40X max./17X min.; 32X max./17X min.; 24X max./12X min. ^oFor all Micron PCs configured with 56Kbps modems: Capable of receiving downloads at up to 56Kbps and sending at up to 31.2Kbps. Due to FCC regulations on power output receiving speeds are limited to 53Kbps. Actual speeds may vary. ^oOne year free with purchase of new Micron desktop or notebook system. Free subscription does not include books or software. ^oPrices determined on August 2, 1999 from prices listed on manufacturers' websites. ¹⁴Micron Leasing arranged by an independent entity to qualified commercial customers. Listed lease payments based on 48 months, FMV terms and do not include taxes, fees or shipping charges. Leasing subject to credit approval and availability. Listed lease terms subject to change without notice or obligation.

ORDER DIRECT 1-888-717-1608

ones are recommended for swifter performance. In particular, you'll need an 80-wire cable to get the maximum speed out of these drives.

We also looked at the products' jumpers, those little switches that determine whether the unit is set as "master" or "slave." The former is reserved for the C: drive from which you boot your PC, and the latter, for a secondary drive. You'll need to make sure that each is set correctly. When you install your new drive, set it as slave; then after you've partitioned, formatted, and copied the data from your old drive, switch it to master. Unfortunately, some drive makers, such as Fujitsu and Quantum, still don't have the jumper settings clearly marked on the drive. If you need to find the jumper settings, refer to the drive's data sheet.

Installation instructions are also crucial, especially for nonexperts. Seagate's Medalist 17242 takes the title for best documentation, with a complete installation guide printed right on the drive. The unit also includes a well-written manual and the easiest-to-use installation software of the lot (see "Top-Notch Utilities," right).

Hot on the heels of Seagate are both Western Digital drives, which provide complete, well-illustrated docs. Maxtor also deserves an honorable mention for its handy foldout, step-by-step installation poster. IBM provides informative but basic manuals. On the other end of the spectrum, Quantum supplies minimal, hard-to-decipher docs written for experienced users. Fujitsu provides 5-by-7-inch sheets of paper with info on basic setup.



top-notch utilities

Useful Software:

Seagate drives

No Software:

Fujitsu drives

Seagate's Cheetah Bursts Ahead

THOUGH 7200-RPM hard drives come standard on many high-end desktops,

the fastest cat in the land is the aptly named 10,000-rpm Cheetah from Seagate, featuring an Ultra2 SCSI interface (you pay \$875 for the drive and SCSI adapter). To see just how fast the Cheetah runs, we matched it up against the drives that performed the swiftest (by spin rate) in our file-copy, file-search, and defragmentation tests. (See main test report, page 174.)

The Cheetah outpaced the IBM Deskstar 22GXP by more than 30 percent in the file-search test and by 55 percent in the defragmentation test. However, the Cheetah tripped in the file-copy test, trailing Maxtor's DiamondMax Plus 5120 by more than 25 percent. What gives?

Mike Walton, product marketing manager for Seagate's Cheetah and Barracuda hard drives, attributes the disparities to the differences between the UltraDMA and SCSI interfaces. SCSI, he says, is best for random-access operations (such as our defrag test), whereas UltraDMA does a better job at single-stream data transfers.

"Server applications are where SCSI does well," Walton says. Ninety-five percent of all servers use SCSI because it can process multiple read/write requests simultaneously. Digital video editing also benefits from SCSI's multitasking abilities because they pull in data from multiple sources at once (such as video and audio tracks).

By contrast, the UltraDMA interface can execute only one read/write request at a time. Still, UltraDMA works well for basic computing chores where there isn't a lot of multitasking involved. —Alan Stafford

• Cheetah \$875 list; Seagate; 877/271-3285; www.seagate.com

PRODUCT INFO NO. 738

ASSUMING THAT YOUR PC'S BIOS supports drives larger than 8.4GB, you don't really need extra software to install one of these drives. You can install the old-fashioned way by creating a bootable floppy disk using basic DOS commands like fdisk, format, and xcopy. (For detailed instructions, check out www.pcworld.com/oct99/hard_drives.)

But going this route involves a multitude of steps, and fdisk is notorious for its user-hostile interface. You'll find the procedure is considerably easier if you run the utilities that come with most drives because they automate the process of partitioning and formatting your new hard drive, as well as copying the data from your original drive to the new one.

So save yourself a headache: With the exception of the Fujitsu models, all the ▶

TEST REPORT

SPIN RATE	File copy test time (seconds)	File search test time (seconds)	Defragmentation test time (minutes)
10,000 rpm	Seagate Cheetah 18GB 62	Seagate Cheetah 18GB 61	Seagate Cheetah 18GB 8
7200 rpm	Maxtor DiamondMax Plus 5120 20.4GB* 49	IBM Deskstar 22GXP 22GB 80	IBM Deskstar 22GXP 22GB 12.4
5400 rpm	Maxtor DiamondMax 6800 27.2GB 51	Western Digital WD Caviar 20.4GB* 92	Maxtor DiamondMax 6800 27.2GB 13
*Best Buy	Faster	Faster	Faster

HOW WE TEST See main test report on page 174. Fastest drive in each test and spin rate category is shown.



FREE PC FOREVER.

When you subscribe to three years of our Micron™ FreeWare services package* (less than a buck a day when you order online), the Micron PC is yours, free. For life. Because we'll ship you a new, free PC every three years when you renew your subscription. And this is no stripped-down version or a no-name, low-powered paperweight. It's a Micron Millennia® PC. It comes with an Intel® Celeron™ processor at 400MHz, 32MB memory, a 4.3GB hard drive¹ and a monitor. But it gets better. Because when you subscribe to our Micron FreeWare services package, you will receive three years of unlimited Internet access¹¹, a three-year, on-site warranty, 24x7 telephone technical support¹¹ and a renewable, three-year membership to e-additions @Club – where you can purchase peripherals and software at deeply discounted prices. And so you get the most out of your PC, we've also included one year of unlimited online training at Micron University.¹ But hurry. The PC will be free for life. But an offer like this won't last, so act now.

All the Stuff You Get	Retail Price	Micron FreeWare Price
Millennia PC at 400MHz	\$999	FREE
3-year unlimited Internet access	\$790	\$790
3-year on-site limited warranty	\$99	\$99
Microsoft Works Suite 99	\$99	\$99
3-year e-additions online store	\$99	\$99
Compare, Call and Connect	\$2086	\$1087



**ASK ABOUT MICRON'S SIX-MONTH SAME-AS-CASH PLAN.
GO TO WWW.MICRONFREEWARE.COM OR CALL 1-888-807-5796.**



*Prepayment for Micron FreeWare is required prior to the initiation of the services and shipment of the Micron PC. Prepayment amount is \$1087, plus a \$49 activation fee, applicable taxes and shipping charges. The \$49 activation fee is waived for orders placed online. Payment plan available. Call for details.

©1999 Micron Electronics, Inc. All rights reserved. Micron PC, Inc. is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice; prices do not include shipping and handling and any applicable taxes. Seller's return policy does not include return freight and original shipping/handling charges, and all return and warranty periods begin from the date a product is shipped, not when it arrived. A restocking fee may be charged upon the return of a product. All sales are controlled by Seller's current terms and conditions of sale which are available on Seller's website or from its sales representatives. On-site service is provided at sole discretion of Micron Computer Services, Inc. A diagnostic determination for on-site service must be made by a Micron service technician prior to the provision of on-site service. Intel and the Intel Inside logo are registered trademarks and Celeron is a trademark of Intel Corporation. Product names of Micron products are trademarks or registered trademarks of Micron Electronics, Inc. Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies. Note: Advertised configurations may differ from award-winning configurations. ¹All hard drive sizes calculated with 1GB equal to 1 billion bytes. ¹¹One year free with purchase of new Micron desktop or notebook system. Free subscription does not include books or software. ¹²24x7 telephone technical support is for hardware only. The subscription to the Micron FreeWare may be canceled within the time period described in Seller's Money Back Policy, a copy of which is available at Seller's website or from Seller's sales representatives. In addition, the conditions of Seller's Money Back Policy must be satisfied with regard to the PC. Some state laws may afford you greater or other protections. ¹³Credit card required for sign-up for Internet access. Credit card information must be provided to Internet Service Provider to activate account. Customer will not be charged for usage under this plan. Offer is available in the Continental U.S. and Hawaii; any applicable ISDN or long distance charges required for Internet access in customer's location are the responsibility of customer and are not covered under this offer.



"Trying to lose



Get the speed YOU need.

If you've been holding out for the cable or telephone company to bring high-speed Internet access to your neighborhood, chances are it's been a while. Which is a shame, because if you'd chosen DirecPC®, you could be surfing at up to 400 Kbps **right now**. That's up to 14 times faster than a standard 28.8 modem and almost three times faster than an ISDN line.

HARDWARE
AS LOW AS

\$199

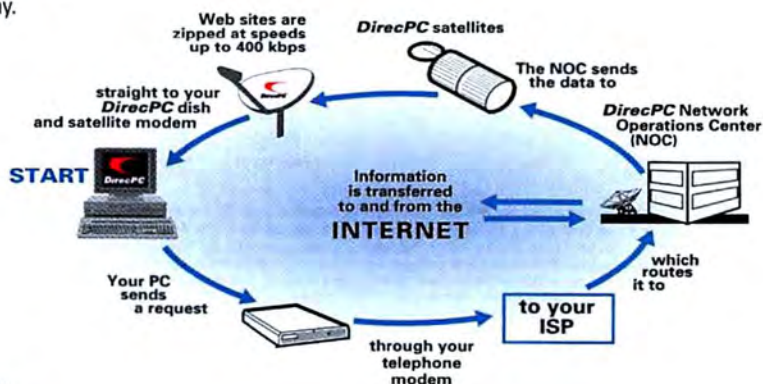
It's easy.

How do you get started? Just visit us at www.direcpc.com to find a retailer near you. If you can't find a store in the neighborhood, call us at 1-800-DIRECPC. We'll send you your dish, satellite modem, software and everything else you need. We can arrange professional installation for you, too. Either way, getting started is just a phone call or a mouse click away.



How does it work?

The engineers at Hughes figured out that the real bottleneck in the speed of the Internet wasn't the request **out** to the Web — telephone modems handle that just fine. Everything slows down when the Web tries to use the telephone system to send you **back** the media-rich information you requested. So, we use a much faster satellite connection for sending you the Web content you want. Check out the diagram — this is the system that makes DirecPC the fastest Internet access available nationwide.



a little Wait?"

DirecPC gets pushy.

Sure, you love the idea of surfing the Web at up to 400 Kbps. But what if you could get your favorite Web sites and Usenet Newsgroups delivered straight into your PC by satellite — **automatically**, without even having to tie up your phone line to ask for them? That's just what DirecPC's Turbo WebCast™ and Turbo NewsCast™ services do — so you're never behind on the news and information that's important to you. The best thing about these two services? They're **free** with your paid subscription to any Turbo Internet™ service package.



The good news.

No other high-speed Internet access provider offers so much for so little. Take a close look at our service pricing — we're sure you'll find a package you like.

SERVICE
AS LOW AS

\$19⁹⁹
MO.

Want TV with that?

We know what you're thinking: "If I'm going to put a dish on my roof, I might as well sign up for one of those satellite TV services, too."

We agree! That's why, for a few dollars more, you can upgrade to our DirecDuo™ dish with your DirecPC satellite modem. Add a Hughes-brand digital satellite receiver (or the receiver you already own), and you get almost 200 channels crystal-clear satellite TV from DIRECTV as well as Turbo Internet from DirecPC. Just call 1-800-DIRECPC or stop by www.direcpc.com to find out more.



You already know how great the Internet is — you're just looking for a way to go faster. DirecPC is the fastest Internet access available nationwide. It's affordable, and it's available everywhere. So, if you're still plugging away with an old-fashioned telephone modem, you need to ask yourself:

What are you waiting for?

Service Plan Details		Residential		Business
Name of Service Plan		Executive Surfer	Family Surfer	Office Surfer
Price of Service Plan (Including ISP)		\$29.99/Month	\$49.99/Month	\$129.99/Month
Price of Service Plan (Without ISP)		\$19.99/Month	\$34.99/Month	\$109.99/Month
Hours of Service (Availability)		24 Hours a Day	24 Hours a Day	24 Hours a Day
On-Line Time (Hours of usage for Turbo Internet)		25 Hours/Month	100 Hours/Month	200 Hours/Month
Additional Hourly Rate (Including ISP)		\$1.99/Hour	\$1.99/Hour	\$1.99/Hour
Additional Hourly Rate (Without ISP)		\$9.99/Hour	\$9.99/Hour	\$9.99/Hour
DirecPC Services				
Turbo Webcast: Broadcast delivery of popular Websites to your PC's hard drive		Included	Included	Included
Turbo NewsCast: Broadcast delivery of up to 30,000 Usenet Newsgroups to your PC's hard drive		Included	Included	Included
Turbo Internet: Fully interactive access to the Internet at speeds up to 400Kbps		Included in Online Time	Included in Online Time	Included in Online Time
Free E-mail Accounts		1	1	4
Networking (Number of Seats)		N/A	N/A	4

1 (800) DIRECPC
WWW.DIRECPC.COM

DirecPC HUGHES NETWORK SYSTEMS

\$199 hardware price after DirecPC rebate. New Credit card customers only. Expires October 30, 1998. \$100 rebate posted to credit card upon service activation. 12 month commitment to service required. \$100 cancellation fee charged to credit card if service canceled within 12 months. Cannot be combined with other DirecPC promotions. Executive Surfer and Family Surfer packages for single-user systems only and subject to Fair Access Policy and Subscriber Agreement. Speeds may vary. Not available in Alaska or Hawaii. Requires line of sight to the southern sky. © 1998 Hughes Network Systems, a Hughes Electronics Corporation Company. DIRECTV is a registered trademark of DIRECTV, a Hughes Electronics Corporation Company.

drives we tested provide such installation software. Seagate's utility is Windows-based; all the others are DOS-based, bootable floppy disks that guide you through the necessary steps.

IT'S WHAT'S INSIDE THAT COUNTS

THE IBM AND Quantum drives include Ontrack's Disk Manager DiskGo, whereas the Western Digital and Maxtor models come with StorageSoft's EZ-Drive software, which adds setup information. Neither Disk Manager DiskGo nor EZ-Drive looks fancy, but both utilities get the job done with minimal fuss.

Maxtor's MaxBlast utility is a highly customized, graphics-oriented one that includes step-by-step pictorial instructions. And the Maxtor drives' bundled utilities automatically install a fix if your computer's BIOS doesn't support devices larger than 8.4GB, which helps make the setup process run smoothly.

Nonetheless, Seagate takes the prize for best software. Its Windows-based DiscWizard is a pleasure to use, and it's the only one here that analyzes your current setup, asks you what you want to install, then tells you exactly what to do next, using helpful graphics and animation. It also produces a step-by-step installation checklist that is customized to your particular setup. You can print the checklist and use it after you have shut down your system (as instructed by the program) and installed the new drive.

KEEPING IT SIMPLE

ONE OTHER UTILITY for installing hard drives bears mentioning. If you plan to upgrade to a Fujitsu drive, or if you want a simpler installation option than the one you've got, consider buying PowerQuest's DriveCopy. This \$30 utility lets you set up your new drive as the boot device, which eliminates the two-step process of assigning the new drive as a slave and then switching it later to master, as other software packages require.

Aside from this two-step hassle, however, the standard software that comes with your drive should work fine.

• **DriveCopy** \$30 list; PowerQuest; 800/379-2566; www.powerquest.com

PRODUCT INFO NO. 650



speed racers

Lightning Fast:

IBM Deskstar 22GXP and Maxtor DiamondMax Plus 5120

Slowpokes:

Seagate drives

ALTHOUGH PERFORMANCE scores ran the gamut in our tests, all the drives we looked at provide decent speed for most tasks. We tested the performance of these

models in three real-world chores: copying files, searching for files, and defragmenting the drive. We copied 166MB of data, searched for specific text within a file, and defragmented a drive that hadn't been defragged in two months of use (see "How We Test" in the test report below for more details).

In our file copy test, the 20.4GB DiamondMax Plus 5120 blew away the competition by copying files in a lightning-fast 49.4 seconds. At the other end of the scale, Seagate's 17GB Medalist 17242 took nearly 2 minutes to finish the task.

Meanwhile, the IBM Deskstar 22GXP narrowly beat its nearest rival in our file-search test, finishing after 1 minute and 20 seconds of searching. The Seagate Medalist was by far the slowest, taking 3 minutes and 16 seconds.

Among the three file tests, speed is least crucial to the defragmentation test because it's by far the most time-con-

TEST REPORT

These Drives Do the Job

The Maxtor and IBM perform fastest overall in our tests.

HARD DRIVE	Disk capacity (GB)	File copy/File search test time (seconds)	Defragmentation test time (minutes)
7200-rpm	Fujitsu MPD3137AH	92 132	14.6
	IBM Deskstar 22GXP	90 80	12.4
	Maxtor DiamondMax Plus 5120*	49 85	12.6
	Quantum Fireball Plus KA	72 83	13.4
	Western Digital WD Expert 18GB	99 81	12.7
5400-rpm	Fujitsu MPD3173AT	96 130	15.4
	IBM Deskstar 25GP	103 96	13.1
	Maxtor DiamondMax 6800	51 94	13
	Quantum Fireball CR	99 101	14.4
	Seagate Medalist 17242	115 196	14.3
	Seagate U4	103 150	17.7
	Western Digital WD Caviar 20.4GB*	110 92	13.1
*Best Buy		Faster	Faster



HOW WE TEST We ran all tests on a Pentium II-350 PC running Windows 98. We copied approximately 166MB of files (30 folders with 146 documents in different file formats, including text, Excel, HTML, Access, GIF, TIF, WAV, and Zip) from one partition to another on the test drive. We also searched on the test hard drive for specific words inside a text file hidden several directories deep from the root directory, and defragmented the test unit after copying an image of a fragmented hard drive using PowerQuest Drive Image. For all test times, lower is better. Data based on testing conducted by the PC World Test Center. All rights reserved.



Your team

may be all over the map,

but their work

doesn't have to be.

Your all-in-one
small business weapon:

- Document Sharing
- Group Calendar
- Group Contact Manager
- Private Bulletin Boards
- Company Chat Rooms
- Web-based e-mail
- And much more

Working together seamlessly is a must for small businesses. And there's no better collaboration and communication tool than HotOffice 2.0. No matter where team members are, everyone can securely access vital information, day or night, from any Web connection. Even better, HotOffice is a Web-based intranet service. There's no hardware or software to buy. Just one low monthly price. Check out what HotOffice can do for your business with a 30-day free trial. 1-888-4HOTOFFICE.

 **hotOffice**[™]
Anytime Anywhere Officing[™]

**30-DAY
FREE TRIAL**

www.hotoffice.com/trial30

Circle 125 on card or go to www.pcworld.com/productinfo

suming, regardless of the drive's performance—you can walk away for lunch while it's happening. However, defragmentation is also not a task to take lightly, since it can significantly affect the overall performance of your drive.

The defragmentation process reverses a kind of degradation that occurs in these devices over time—the longer you use a drive, the more fragmented files become, with bits and pieces getting scattered in different areas of the disk. This dispersion

of files forces the read/write heads to jump around, thereby slowing file access. Defragging restores speedy access by pulling files together in one continuous area of the drive.

We didn't see a huge variation in our defrag results. IBM's Deskstar 22GXP again squeaked past the others, completing the chore in 12.4 minutes. Most others took one to three minutes longer, while Seagate's U4 finished last, taking almost 18 minutes to complete the job.

Buying Tips

WHEN YOU'RE READY to replace your small and poky drive with one of the really big and fast models, here are a few hints and tips to keep in mind while you shop around.

1 Get the complete package. Most manufacturers offer their drives both in retail packages (which include a cable, a complete manual, and installation software) and in so-called white box configurations (essentially just a drive in a box with a data sheet). Though you might save a few bucks on a stand-alone drive, buying the retail pack will make setup easier, especially if you've never installed a hard drive before. If you're buying by mail order or via the Web, make sure you know what you're getting.

2 Be flexible. Most retailers don't keep all makes and models in stock all the time. Decide on a few alternatives, in case the drive you're looking for isn't immediately available. Also, while most retailers offer promotional discounts, these may not apply to the model you want.

3 Look for cash back. It's a competitive market out there, so manufacturers sometimes offer rebates on hard-drive purchases. Check with your retailer to see if a rebate is available on the model you want. And don't dally on sending any rebate form back—the longer you wait, the more likely you'll miss the deadline.

4 Shop around. Many stores and online retailers sell hard drives. Big chains like CompUSA (www.compusa.com), Circuit City (www.circuitcity.com), and Best Buy (www.bestbuy.com) usually offer drives at affordable prices. For still lower prices but limited selection, check out warehouse stores like Costco (www.pricedcostco.com) and Sam's Club (www.samsclub.com). If you shop online, consider PC Connection (www.pcconnection.com). You can also buy direct from a hard-drive company's Web site; vendors include IBM, Western Digital, and Quantum. Don't expect to find bargains, though. —Stan Miskowski



five-star support

Top Service:

Western Digital

Mediocre Assistance:

Fujitsu

HARD-DRIVE VENDORS have improved support in recent years. In anonymous calls, we found all the companies here had knowledgeable and friendly reps. Most manufacturers also provide useful information—such as installation checklists, hints, tips, and answers to frequently asked questions—on their Web sites.

Although all drive makers in this review offer similar support policies (three years of warranty and at least 9 hours of week-day tech support), Western Digital edges ahead by providing tech support on Saturdays and extra-helpful online assistance. Seagate comes in second, offering toll-free phone support and lots of useful information on its Web site. Maxtor also earns high marks for its terrific support package, which includes extensive online hints and tips and a no-hassle replacement policy, under which the company will ship you a new drive if any problems develop during the three-year warranty period.

Fujitsu provides toll-free and Saturday support, but it is the only company here that doesn't offer Web-based support. None of the vendors in this roundup offers tech support on Sundays.



Find files mentioned in this article at www.fileworld.com/magazine. Stan Miskowski is a contributing editor and Alan Stafford a senior associate editor for PC World. Testing performed by Robert James of the PC World Test Center.



**YOU DON'T NEED
LOTS OF MONEY
AND CONNECTIONS
TO GET EXACTLY
WHAT YOU WANT.**



**JUST THE RIGHT
COMPUTER COMPANY.**



BE DIRECT™
DELL®
www.dell.com

GET JUST THE BUILT FOR



Dell Precision Workstation. Systems engineered for high-performance and memory-intensive applications, making your critical applications scream.



Dell OptiPlex. Dependable PCs designed and tested for stability and compatibility in a network environment.



Dell Dimension. Value-packed desktops that deliver outstanding performance for your dollar.



pentium® III

At Dell we want to give you what you want. From workstations to desktops, let us custom build a system to meet the demands of your business and your budget. With over a million configurations and tailored upgrade packages, the choice is yours.

The Dell Precision™ Workstation with single or dual Pentium® III processors is a great pick for high-end graphics. Engineered for high-performance and memory-intensive applications, it handles a wide range of graphics card options, such as MCAD and 3D animation. If you're searching for a desktop built for a networked environment, the Dell® OptiPlex® is ideal. Designed for network stability, it also boasts easy peripheral integration and simple upgrading. And the Dell Dimension® lets you choose some of the latest processor and peripheral technology to run your office applications at a price that's surprisingly low.

Of course, whichever system you decide is right for you, each comes with our award-winning service and support. Visit us at www.dell.com and enter the E•Value code for the system you want, or customize one that's right for you. Or give us a call. Either way you'll do right by Dell.



RIGHT SYSTEM YOUR BUSINESS.

DELL PRECISION™ WORKSTATION 210 (DUAL PROCESSOR CAPABLE)

Advanced Performance and Graphics

- Intel Pentium® III Processor at 500MHz
- Mini-Tower Model
- 128MB 100MHz ECC SDRAM
- 512KB Integrated L2 Cache
- 13.6GB* (7200 RPM) EIDE Hard Drive
- 17" (16.0" vis) M780 Monitor
- 32MB Diamond Viper V770D Graphics Card
- 40X Max⁵ Variable EIDE CD-ROM Drive
- harman/kardon HK-195 Speakers
- Integrated Sound Blaster Pro Compatible Sound
- Integrated 3Com® Fast EtherLink™ XL 10/100 PCI TX Network Interface with Remote Wakeup
- Remote Client Manageability Support via DMI 2.0; Wakeup on LAN Capable
- MS® Windows NT® Workstation 4.0
- Logitech First Mouse™+
- 3-Year NBD On-site³ Service
- 7x24 Dedicated Workstation Hardware Telephone and Online Technical Support

\$2199

Business Lease¹⁵: \$74/Mo., 36 Mos.

 **E-VALUE CODE: 03676-490921**

DELL® OPTIPLEX® GX1 450L

Network-Optimized Managed PC

- Pentium III Processor at 450MHz
- Opti-Frame™ Low-Profile Tool-Less Chassis
- 64MB 100MHz SDRAM
- 6.4GB* SMART Ultra ATA Hard Drive
- 15" (13.7" vis) 800F Monitor
- 8MB ATI RAGE Pro AGP Graphics
- 3Com Fast EtherLink™ XL 10/100 w/ACPI and Remote Wakeup
- 40X Max⁵ Variable CD-ROM
- Sound Blaster Pro Compatible Sound
- Remote Client Manageability Support via DMI 2.0
- MS Windows NT Workstation 4.0
- Microsoft IntelliMouse
- 3-Year Next-Business-Day On-Site³ Service
- Call about our Small Business Series featuring MS Office 2000
- Long Product Lifecycles for Network Stability
- ★ Upgrade to 128MB 100MHz SDRAM, add \$99
- ★ Upgrade to 13.6GB* SMART Ultra ATA Hard Drive, add \$110

\$1299

Business Lease¹⁵: \$44/Mo., 36 Mos.

 **E-VALUE CODE: 03676-390912**

NEW DELL OPTIPLEX GX100 433S

Network-Optimized Managed PC

- Intel® Celeron™ Processor at 433MHz
- Opti-Frame S Tool-Less Chassis
- 32MB 100MHz SDRAM
- 4.3GB* SMART Ultra ATA Hard Drive
- 15" (13.7" vis) 800F Monitor
- Intel Direct AGP Graphics
- 3Com Fast EtherLink™ XL 10/100 PCI NIC with ACPI and Remote Wakeup
- Remote Client Manageability Support via DMI 2.0
- Dell System Mouse
- Long Product Lifecycles for Network Stability
- MS Windows NT Workstation 4.0
- 3-Year NBD On-site³ Service
- ★ Call about our Small Business Series featuring MS Office 2000
- ★ Upgrade to 64MB SDRAM, add \$49
- ★ Upgrade to 6.4GB* SMART Ultra ATA Hard Drive, add \$29
- ★ Upgrade to 24X Max⁵ Variable Slimline CD-ROM, add \$49

\$949

Business Lease¹⁵: \$32/Mo., 36 Mos.

 **E-VALUE CODE: 03676-390909**

GigabuySM

Available at Dell.com.
More products at great prices!



- HP® DeskJet® 882 Color Printer, add \$299.
- HP DeskJet 710 All-in-One, add \$499.
- HP LaserJet® 1100se Printer, add \$399.
- 15" (15.0" vis) Princeton APP 560 Flat Panel Display, add \$999.
- HP SureStore CD-Writer Plus 7500E, add \$324.
- APC Back-UPS Pro 500, add \$149.
- 3Com Palm III Organizer, add \$207.
- Belkin ExpressBus 7-port USB Hub, add \$88.
- Dragon NaturallySpeaking Preferred (Speech Recognition Software), add \$149.

DELL DIMENSION® XPS T500

Cutting Edge Performance

- Pentium III Processor at 500MHz
- Mini-Tower Model
- 128MB 100MHz SDRAM
- 13.6GB* (7200 RPM) Ultra ATA Hard Drive
- 17" (16.0" vis) M780 Monitor
- 16MB Diamond Viper nVidia TNT AGP Graphics Card
- 40X Max⁵ Variable CD-ROM Drive
- Yamaha XG 64V Wavetable Sound
- harman/kardon HK-195 Speakers
- 3Com 3C905C-TXM 10/100 NIC
- 100MB iomega Zip BUILT-IN Drive
- MS Office 2000 Small Business
- MS Windows® 98, Second Edition
- Dell QuietKey® Keyboard
- MS IntelliMouse®
- 3-Year Limited Warranty²
- 1-Year NBD On-site³ Service
- ★ Upgrade to 17" (16.0" vis) P780 Trinitron® Monitor, add \$79
- ★ Upgrade to 256MB 100MHz SDRAM, add \$199

\$1599

Business Lease¹⁵: \$54/Mo., 36 Mos.

 **E-VALUE CODE: 03676-590919**

DELL DIMENSION XPS T450

Solid Performance, Great Value

- Pentium III Processor at 450MHz
- Mini-Tower Model
- 32MB 100MHz SDRAM
- 4.3GB* Ultra ATA Hard Drive
- 15" (13.7" vis) 800F Monitor
- 8MB ATI XPERT 98D 3D AGP Graphics Card
- 40X Max⁵ Variable CD-ROM Drive
- 3Com® 3C905C TXM 10/100 NIC
- MS Works Suite 99
- MS Windows 98, Second Edition
- Dell QuietKey® Keyboard
- MS IntelliMouse®
- 3-Year Limited Warranty²
- 1-Year NBD On-site³ Service
- ★ Upgrade to 64MB SDRAM, 6.4GB* Hard Drive, Microsoft Office 2000 Small Business, add \$139

\$999

Business Lease¹⁵: \$33/Mo., 36 Mos.

 **E-VALUE CODE: 03676-590909**

DELL DIMENSION L400c

Affordable Desktop Solution

- Intel Celeron Processor at 400MHz
- Micro-Tower Model
- 32MB 100MHz SDRAM
- 4.3GB* Ultra ATA Hard Drive
- 15" (13.7" vis) 800F Monitor
- Intel 3D AGP Graphics
- 40X Max⁵ Variable CD-ROM Drive
- Soundblaster 64V Integrated Sound
- Intel 10/100 Ethernet Controller
- Microsoft® Works Suite 99
- MS Windows 98, Second Edition
- Logitech FirstMouse+ Wheel (PS/2v)
- Dell QuietKey® Keyboard
- 3-Year Limited Warranty²
- 1-Year NBD On-site³ Service
- ★ Upgrade to 64MB SDRAM, 6.4GB* Hard Drive, harman/kardon HK-195 Speakers and Microsoft Office 2000 Small Business, add \$199

\$799

Business Lease¹⁵: \$27/Mo., 36 Mos.

 **E-VALUE CODE: 03676-590907**

DELL AWARD INFO

- In 1998, Dell desktops and workstations won more than 140 product and service awards. See www.dell.com/awards98 for details. Or browse by product: www.dell.com/products/workstat/awards.htm www.dell.com/products/optiplex/awards.htm www.dell.com/products/dim/awards.htm

Advised configurations vary from award-winning configurations.

- In Canada,¹ call 800-232-6978
- In Mexico,¹ call 01-800-021-4531



USE THE POWER OF THE E-VALUE™ CODE. MATCH OUR LATEST TECHNOLOGY WITH OUR LATEST PRICES. ENTER THE E-VALUE CODE ONLINE OR GIVE IT TO YOUR SALES REP OVER THE PHONE. WWW.DELL.COM/EVALUE

800-822-1605

BE DIRECT™
DELL
www.dell.com

MOBILIZE YOUR BUS AWARD-WINNING



If it's portability you're after, the Inspiron™ 3500 combines light weight with light price. Equipped with a Pentium® II processor, you won't sacrifice any performance. Our fully loaded Inspiron 7000 is ideal for those who want desktop-like performance without paying a fortune. In fact, it won first place in *PC World's* Best Buy in the Power Notebook Category, and was called the "fastest notebook we've tested" (8/99). Also, *PC Magazine* gave the Inspiron 7000 its Editors Choice award for desktop replacements (8/99). Maybe it's durability you desire? Then let our Latitude® be your steady partner. It's the only notebook line to survive *PC Computing's* "Torture Test" for the fifth consecutive year, 3/99. This low-cost investment is ideal for network environments.

For the ultimate in mobility, Dell introduces the *new* Latitude CS. Weighing just 4.3lbs and 1.2" thin, this Pentium II processor-notebook won't slow you down.

To get the notebook that's just right for you, visit www.dell.com or call **800-822-1605**.



*The Dell Inspiron 7000 Notebook Series.
Mobile Desktop*



*The Dell Inspiron 3500 Notebook Series.
Light weight, light price.*



*The Dell Latitude Notebook Series.
The network-optimized notebook.*

INESS WITH OUR NOTEBOOK LINES.

DELL INSPIRON™ 7000

Mobile Desktop

- Pentium® II Processor at 400MHz
- 15" XGA Active Matrix Display
- 96MB SDRAM
- NEW 25GB⁴ Ultra ATA Hard Drive
- NEW Removable Combo 6X Max⁷⁷ Variable DVD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE Mobility™ P3D Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Internal 56K Capable¹¹ V.90 Fax Modem
- Microsoft® Office 2000 Small Business
- Microsoft Windows® 98 Second Edition
- 3-Year Limited Warranty²
- McAfee VirusScan 4.02
- NEW CompleteCare™ Service³³, add \$179

\$3579

Business Lease¹⁵: \$120/Mo., 36 Mos.

 **E-VALUE CODE: 03677-890935**

DELL INSPIRON 7000

Mobile Desktop

- Intel® Celeron™ Processor at 366MHz
- 15" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB⁴ Ultra ATA Hard Drive
- Removable Combo 24X Max⁷ Variable CD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE Mobility P 3D Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Microsoft Works Suite 99 with Money 99 Basic
- Microsoft Windows 98 Second Edition
- 3-Year Limited Warranty²
- McAfee VirusScan 4.02
- ★ Upgrade to 64MB SDRAM, add \$99.
- ★ Upgrade to 6.4GB⁴ Ultra ATA Hard Drive, add \$99

\$1999

Business Lease¹⁵: \$67/Mo., 36 Mos.

 **E-VALUE CODE: 03677-890919**

DELL INSPIRON 3500

Light Weight, Light Price

- Pentium II Processor at 366MHz
- 14.1" XGA Active Matrix Display
- 64MB SDRAM
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM and Floppy Drive
- NeoMagic® MagicMedia™ 256AV AGP Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Microsoft Office 2000 Small Business
- MS Windows NT Workstation 4.0
- 3-Year Limited Warranty²
- McAfee VirusScan 4.02
- ★ Upgrade to 3-Year NBD On-site³ Service, add \$99

\$2399

Business Lease¹⁵: \$80/Mo., 36 Mos.

 **E-VALUE CODE: 03677-890923**

DELL INSPIRON 3500

Light Weight, Light Price

- Intel® Celeron™ Processor at 366MHz
- 14.1" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM and Floppy Drive
- NeoMagic® MagicMedia™ 256AV AGP Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Microsoft Works Suite 99 with Money 99 Basic
- Microsoft Windows 98 Second Edition
- 3-Year Limited Warranty²
- McAfee VirusScan 4.02
- ★ Mobility Bundle¹⁵: Internal 56K Capable¹¹ v.90 Fax Modem, MS Office 2000 Small Business and Deluxe Nylon Case, add \$149.

\$1799

Business Lease¹⁵: \$60/Mo., 36 Mos.

 **E-VALUE CODE: 03677-890917**

DELL® LATITUDE® CPl R


Network-Optimized Notebook

- Pentium II Processor at 400MHz
- 14.1" XGA Active Matrix Display
- 64MB SDRAM (512MB Max¹³)
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM
- Modular Floppy Drive
- MagicMedia™ 256ZX
- 3D Surround Sound with Wavetable
- Lithium Ion Battery with 1-Hour ExpressCharge™ Technology
- Microsoft® Windows NT® Workstation 4.0
- Touchpad
- 3-Year Next-Business-Day On-site³ Service

★ Upgrade to 96MB SDRAM, add \$99.

\$2899

Business Lease¹⁵: \$97/Mo., 36 Mos.

 **E-VALUE CODE: 03677-790928**

DELL® LATITUDE® CPl

Network-Optimized Notebook

- Intel Celeron Processor at 400MHz
- 14.1" XGA Active Matrix Display
- 32MB SDRAM (512MB Max¹³)
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM
- Modular Floppy Drive
- MagicMedia 256ZX
- 3D Surround Sound with Wavetable
- Lithium Ion Battery with 1-Hour ExpressCharge™ Technology
- Microsoft® Windows NT® Workstation 4.0
- Touchpad
- 1-Year Next-Business-Day On-site³ Service

★ Upgrade to 64MB SDRAM, add \$99.

\$1899

Business Lease¹⁵: \$64/Mo., 36 Mos.

 **E-VALUE CODE: 03677-790918**

DELL NOTEBOOK AWARD INFORMATION

- Inspiron 3500 C300XT – *PC World's* Best Buy in the budget category, 6/99, 7/99.
- Latitude CPl A366XT – *PC World's* #1 Best Buy Power Notebook, 6/99, 7/99.
- Latitude CPl Series A366XT – *May Windows Magazine* List Fastest Performance, 5/99, 7/99.
- Inspiron 7000 A366LT – *PC World's* Best Buy Power Notebooks, 8/99.
- Latitude CPl Series 366XT – 5-Time Survivor of *PC Computing's* Annual Torture Test, 3/99.
- Latitude CPl C400 GT *PC Magazine's* Editors' Choice Award, 8/99.
- Inspiron 7000 A366LT – *PC Magazine's* Editors' Choice for small businesses, 2/99.

Advertized configurations vary from award-winning configurations.

Gigabays™ for Notebooks

Available at Dell.com. More products at great prices!

- NEW 100MB Zip Internal Drive for Latitude CP & CPl (Win95/98), add \$199.
- Notebook Conversion Package, including Black ViewSonic 17" (16.0" vis) Multimedia Monitor, ErgoMouse and Keyboard, add \$399.
- HP® DeskJet® 882 Color Printer, add \$299.
- Canon BJC-50 Portable Printer, add \$349.
- Infocus LP 400 Ultra Portable Projector, add \$3025.
- Targus Defcon Security Device, add \$49.
- Auto/Air Power Adapter, add \$99.
- APC Notebook Surge Protector, add \$29.
- iomega Click! PC Card Drive, add \$219.
- WinFax Pro v.90 \$105.



In Canada: call 800-232-6978
In Mexico: call 01-800-021-4531



USE THE POWER OF THE E-VALUE™ CODE.

MATCH OUR LATEST TECHNOLOGY WITH OUR LATEST PRICES. ENTER THE E-VALUE CODE ONLINE OR GIVE IT TO YOUR SALES REP OVER THE PHONE. ALSO, GO ONLINE TO DESIGN YOUR IDEAL COMPUTER. CHECK THE LATEST PRICES AND GET 24-HR. ONLINE TECH SUPPORT.

WWW.DELL.COM/EVALUE

BE DIRECT™
DELL®
www.dell.com

GET THE RIGHT WITH YOUR

In order to meet the critical needs of your growing business, Dell's PowerEdge® servers are specially designed for reliability and scalability. So whatever stage of growth you're in, Dell has a server for you.

For companies just starting a network, the PowerEdge 1300 is scalable up to 108GB of internal storage capacity. Best of all, it's true server architecture at a price you might expect to pay for a desktop. The PowerEdge 2300 is scalable up to 144GB of internal storage capacity (with 108GB in optional hot-swap drives). The 2300 is also scalable up to 2GB of SDRAM, making it ideal for growing businesses with workgroups. And for companies that can't afford downtime, Dell offers the PowerEdge 4300 and 6300, with hot-swap cooling fans and redundant power supplies for added availability. And you can be assured that every server comes with our award-winning service and support.

To customize a system that's right for you, call, or go to www.dell.com and enter in the E•Value code or custom-configure a system that best matches your growing needs.

800-822-1605



Phone Hours: Mon-Fri 7am-9pm CT • Sat 10am-6pm CT • Sun 12pm-5pm CT
In Canada, call 800-232-6978 • In Mexico, call 01-800-021-4531



USE THE POWER OF THE E•VALUE™ CODE.

MATCH OUR LATEST TECHNOLOGY WITH OUR LATEST PRICES. ENTER THE E•VALUE CODE ONLINE OR GIVE IT TO YOUR SALES REP OVER THE PHONE. ALSO, GO ONLINE TO DESIGN YOUR IDEAL COMPUTER. CHECK THE LATEST PRICES AND GET 24-HR. ONLINE TECH SUPPORT.

WWW.DELL.COM/EVALUE

SERVER TO GROW BUSINESS.

DELL® POWEREDGE® 6300 SERVER (QUAD PROCESSOR CAPABLE)

Enterprise Class Server

- **Pentium® III Xeon™ Processor at 500MHz**
- 512MB ECC EDO RAM
- 512KB Integrated L2 Cache Per Processor
- Three 9GB* (7200 RPM) Ultra-2/LVD SCSI Hot-Swap Hard Drives
- **Ultra-2/LVD PowerEdge Expandable RAID Controller 2 with 64MB ECC Cache**
- 40X Max* Variable SCSI CD-ROM Drive
- HP OpenView™ NNM Special Edition
- Two Intel® Pro/100+ PCI Ethernet Adapters
- Integrated Dual Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- **Redundant Hot-Swap Power Supplies, Cooling Fans and Processor Fans**
- 7 Expansion Slots: (4) 64-bit, (3) 32-bit PCI
- 8-1" Hard Drive Bays/4-5.25" Media Bays
- 3-Year Next-Business-Day On-site³ Service
- 1-Year DirectLine™ NOS Support (5 Resolutions)
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support

\$11,749

Business Lease¹: \$387/Mo., 36 Mos.

 **E-VALUE CODE: 03678-290901**

DELL POWEREDGE 4300 SERVER (DUAL PROCESSOR/RAID CAPABLE)

Departmental Server

- **Pentium III Processor at 500MHz**
- 128MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- 18GB* (10,000 RPM) Ultra-2/LVD SCSI Hard Drive (Hot-Swap Optional)
- 40X Max* Variable SCSI CD-ROM Drive
- HP OpenView NNM Special Edition
- Two Intel Pro/100+ PCI Ethernet Adapters
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- **Redundant Hot-Swap Power Supplies, Cooling Fans and Processor Fans**
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 6-1.6" Hard Drive Bays
- 4-5.25" Media Bays
- 3-Year Next-Business-Day On-site³ Service
- 1-Year DirectLine NOS Support (5 Resolutions)
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support

\$5349

Business Lease¹: \$179/Mo., 36 Mos.

 **E-VALUE CODE: 03678-290953**

DELL POWEREDGE 2300 SERVER (RAID 5 CONFIGURATION)

Workgroup Server

- **Pentium III Processor at 550MHz**
- 256MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- Three 9GB* (7200 RPM) Ultra-2/LVD SCSI Hot-Swap Hard Drives
- **Ultra-2/LVD PowerEdge Expandable RAID Controller 2 (Single-Channel)**
- 40X Max* Variable SCSI CD-ROM Drive
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 6-1" Hard Drive Bays
- 4 Media Bays: 3-5.25", 1-3.5"
- 3-Year Next-Business-Day On-site³ Service
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support
- ★ *Upgrade to three 18GB* (7200 RPM) Ultra-2/LVD SCSI Hard Drives, add \$900*

\$4399

Business Lease¹: \$147/Mo., 36 Mos.

 **E-VALUE CODE: 03678-290943**

Gigabays™

- 3Com® OfficeConnect™ Dual Speed Hub 8-port 10/100 TP, add \$239.
- Cisco 1604 Ethernet ISDN Router with NT-1, add \$1502.
- 3Com OfficeConnect 8/TPO, add \$74.
- 3Com Connect TP 800 8-port TP, add \$164.
- 3Com Superstack II Dual Speed Hub 500, 12-port, add \$674.
- HP JetDirect 300x External 10/100 Base TX Printer Server, add \$245.
- 3Com Sportster 56K Capable¹ v.90 External Modem, add \$149.
- Princeton 15" Black Monitor, add \$229.
- HP LaserJet® 1100SE, add \$399.
- 3Com OfficeConnect ISDN LAN Modem, add \$406.
- 3Com Super Stock II Dual Speed 24 Port 10/100, add \$905
- Cisco 1604 Router, add \$1503
- 3Com USB Network Interface, add \$57
- HP Pro Curve 10 Base-T Hub¹, add \$65
- Cisco 1548 Micro Switch 8 Port, add \$764

DELL POWEREDGE 2300 SERVER (DUAL PROCESSOR/RAID CAPABLE)

Workgroup Server

- **Pentium III Processor at 450MHz**
- 64MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- 9GB* (7200 RPM) Ultra-2/LVD SCSI Hard Drive (Hot-Swap Optional)
- 40X Max* Variable SCSI CD-ROM Drive
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- Hard Drive Bays: 4-1.6" or 6-1"
- 4 Media Bays: 3-5.25", 1-3.5"
- 3-Year Next-Business-Day On-site³ Service
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support
- ★ *Microsoft® Windows NT® Server 4.0, add \$799.*
- ★ *Upgrade to a Pentium III Processor at 500MHz, add \$300.*

\$1999

Business Lease¹: \$67/Mo., 36 Mos.

 **E-VALUE CODE: 03678-290919**

DELL POWEREDGE 1300 SERVER (DUAL PROCESSOR/RAID CAPABLE)

Entry-Level Server

- **Pentium III Processor at 450MHz**
- 64MB 100MHz ECC SDRAM
- 512KB Integrated L2 ECC Cache
- 9GB* (7200 RPM) Ultra-2/LVD SCSI Hard Drive
- 32X Max* Variable EIDE CD-ROM Drive
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated PCI Ultra-2/LVD SCSI Controller
- 6 Expansion Slots: 5 PCI, 1 PCI/ISA
- 4 Hard Drive Bays: 2-1.6" and 2-1"
- 3-5.25" Media Bays
- 3-Year Next-Business-Day On-site³ Service
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support
- ★ *Microsoft Windows NT Server 4.0, add \$799.*
- ★ *Upgrade to 128MB 100MHz ECC SDRAM, add \$80.*

\$1649

Business Lease¹: \$55/Mo., 36 Mos.

 **E-VALUE CODE: 03678-290916**

INTRODUCING DELL NETWORKS™ INSTALLATION SERVICES FOR YOUR NETWORKING NEEDS

With one phone call to Dell, you can now customize your small business network with the right systems and peripherals – and have it installed! Some of the services we offer include:

- Server Installation
- Desktop Installation
- Peripheral Installation
- Network Cabling Installation
- Internet Setup and Configuration

CALL, OR VISIT
WWW.DELL.COM/NETWORKS
TODAY TO CUSTOMIZE
YOUR NETWORK.

Must purchase a PowerEdge server to be eligible for installation services.

DELL SERVER AWARD INFO

- *Network World* "World Class Award" – Dell PowerEdge 4300, 7/99.
- *Network Computing's* "50 Best Products of the Year" – Dell PowerEdge 6300 (Enterprise Server), 5/99.
- *Network Magazine* "1999 Products of the Year" – Dell PowerEdge 2300 (Workgroup Server), 5/99.
- *Computer Shopper* "Top 100" – Dell PowerEdge 2300, 11/98.
- *PC Computing's* "The 'A' List" – Dell PowerEdge 6300, 11/98.
- *LANTimes* "The Best of LANTimes Over \$25,000" – Dell PowerEdge 6300, 9/98.

Advertised configurations vary from award-winning configurations.

BE DIRECT™
DELL®
www.dell.com

GET IT, RIGHT HERE RIGHT NOW.

- MS® IntelliMouse®
- Dell QuietKey Keyboard
- 3-Year Limited Warranty²
- 1-Year NBD On-site³ Service

\$2299

Business Lease: \$77/mo., 36 mos.

DELL E-VALUE CODE : 03675-590622

When it's time to get down to business, the fast easy way is with Dell's E•Value code. Simply log on to our website at www.dell.com/evalue and enter the E•Value code for the system you want. Immediately you'll be taken to that system's page with its latest pricing. From here you can customize the system any way you like, and order quickly and easily. It's never been so easy to get just what you want, right now.

800-822-1605.

BE DIRECT™
DELL®
www.dell.com

Phone Hours: M-F 7a-9p • Sat 10a-6p • Sun 12p-5p CT • In Canada! call 800-232-6978 • In Mexico! call 01-800-021-4531 • GSA Contract #GS-35F-4076D

Pricing not discountable. ¹Prices and specifications valid in U.S. only and subject to change without notice. ²For a complete copy of Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, TX 78682. ³On-site service may be provided by a third-party provider under contract with Dell, and is not available in certain areas. Technician will be dispatched if necessary following phone-based troubleshooting. ⁴For hard drives, GB means 1 billion bytes, total accessible capacity varies depending on operating environment. ⁵17X Min. ⁶14X Min. ⁷10X Min. ⁸2X Min. ⁹Download speeds limited to 53Kbps. Upload speeds are less (in the 30Kbps range) and vary by modem manufacturer. Speeds also vary depending on line conditions. Analog phone line and compatible server equipment required. ¹⁰Weight with floppy drive in options bay. ¹¹Maximum RAM configurations require a factory installed 128MB SoDIMM, which must be installed at time of initial purchase. ¹²Offers differ for AT&T WorldNet and GTE Interactive. Internet access does not include local phone company charges or applicable taxes. Telephone access and other charges may apply. ¹³Business leasing arranged by Dell Financial Services L.P., an independent entity, to qualified customers. Above lease payments based on 36-month lease, and do not include taxes, fees, shipping charges; subject to credit approval and availability. Above lease terms subject to change without notice. ¹⁴Offer expires 7/3/99. Limit two (2) per customer. Not valid with other Hewlett Packard (HP) offers unless otherwise specified by that offer. ¹⁵CompleteCare Service excludes theft, loss, and damage due to fire or intentional damage. CompleteCare³ is currently not available in the following states: Florida, New Mexico, Montana and New York. NY customers should check with Dell for changes in availability. In addition, CompleteCare³ is not available to individual/home users of Dell notebooks purchased through Dell Home Systems Co. For complete details please visit www.dell.com. ¹⁶Max/2.4x Min. DVD video decode functionality is software based with the advertised configuration. Intel, the Intel Inside logo and Pentium are registered trademarks. Pentium III Xeon and Celeron are trademarks of Intel Corporation. MS, Microsoft, BackOffice, IntelliMouse, Windows NT and Windows are registered trademarks of Microsoft Corporation. 3Com is a registered trademark and Fast Ethernet is a trademark of 3Com Corporation. HP and DeskJet are registered trademarks and OpenView is a trademark of Hewlett Packard Corporation. Trinitron is a registered trademark of Sony Corporation. ©1999 Dell Computer Corporation. All rights reserved.

Speak Easy

Our review shows that the latest wave of voice technology products are vastly improved, but we wouldn't ditch that keyboard just yet.



BY CHRISTOPHER LINDBQUIST

WHEN I TALK, I like to be listened to. That's probably why older generations of dictation packages left me cold—they misunderstood many of my ramblings. On top of that, they forced me to speak...in...a...strange...way...pausing...between...words. Now though, I can talk to my computer fairly naturally and dictate a letter without touching a single key.

It's not just about dictation though. All kinds of speech-enabled apps are popping up these days. I can create a spreadsheet and whisk it off as an e-mail attachment, no typing required. I can recite sweet nothings into a handheld device and have my system transcribe the recordings into text. I can use my voice to surf the Web. Heck, my ►

ILLUSTRATIONS BY WARD SCHUMAKER

computer will even talk back to me.

Thanks to increasingly powerful CPUs and falling prices for voice-enabled apps, the technology is getting more and more attention from users.

Speech making waves. Last year voice recognition software broke records. "The category simply came out of the woodwork," says Roger Lancot, PC Data's director of research. "Dragon Systems ranked as the ninth largest business software publisher overall in 1998. Before that, the company wasn't even on our radar screen."

However, not everyone who bought voice recognition software loved it. "We're hearing that roughly 50 percent of users abandon the software shortly after buying it," reports Van Baker, Dataquest's director of consumer market research.

The problem? While the glossy ads depict talkers in kick-back mode, chatting comfortably to their PCs, the reality is very different. "People think, 'Hey, it's *Star Trek* time,' and that's absolutely not the case," says Baker. It's not that the technology fails to work—it *does* work, he says. "People must be willing to put in a significant amount of effort into training and getting used to dictation mode."

The last time *PC World* looked at voice recognition (see *Can We Talk?* www.pcworld.com/jan99/talk), the software could handle e-mail and short text documents but was nowhere near ready to replace keyboards and mice. What's more, *enrollment*—the training the computer needs to learn how you speak—was tedious. Back then, for example, the enrollment time for Lernout & Hauspie's Voice Xpress Plus lasted up to an hour.

Enter Pentium III. Intel claims that software written to take advantage of its Pentium III CPU will greatly enhance the performance of voice recognition. However, the only noticeable difference I found lay in enrollment. Today's PIII-enhanced packages can take as little as 10 minutes of initial training—a heartening change, but not quite revolutionary.

To find out which voice products were up to snuff, I spent several weeks talking to my Pentium III

Best Buys



Dictation software. If you want perfect transcriptions, hire a secretary. If you're willing to accept some errors in exchange for economy and convenience, you can't beat the \$199 **Dragon NaturallySpeaking Preferred 3.5** from Dragon Systems. It turned in better than 95 percent recognition accuracy and demonstrated the smarts to handle business documents with aplomb.

Mobile recorders. The compression that digital recorders use doesn't make them the best bet for speech recognition, but **Dragon NaturallySpeaking Mobile Organizer** does everything possible to help you work by voice while you're on the road. A hefty \$399 buys you the recorder and a copy of *NaturallySpeaking Preferred 3.5*.

PC headset microphones: Indisputably, headset selection is a subjective matter. But for ease of use and sound compatibility, the baton goes to Telex's \$60 **USB Digital Headworn Microphone**. You plug it in, and it works. This USB headset will completely bypass a PC's internal sound setup (noisy audio systems can be problematic for voice recognition, especially in cramped portables).

DRAGON SYSTEMS delivers the best results both at the desktop and on the road. Telex's USB Headworn Microphone lets you bypass your PC's sound card.



machine, dictating a variety of business letters, e-mails, and book excerpts, and I tested the latest PIII-optimized packages (Dragon's *NaturallySpeaking Preferred 3.5*, L&H's *Voice Xpress Professional 4*, and Philips's *FreeSpeech 2000*).

By the time you read this, Dragon's new *NaturallySpeaking Preferred 4* will be on

store shelves (a prerelease version was not available in time for formal testing). The package will cost \$199; at first glance accuracy looked impressive.

Also unavailable for full testing was IBM's new Pentium III-enhanced software. The company says that the *ViaVoice Millennium* family will have three members: *ViaVoice Standard*, *Web*, and *Pro*. IBM claims that its new *ViaVoice* will be simpler to use, more accurate than previous versions, and optimized to work the Web. For a review of both IBM's and Dragon's new voice recognition packages, see *Top of the News* in next month's issue.

Voices, voices, everywhere. I also evaluated the latest mobile recorders, which let you dictate into a recording device while you're on the go. Plus, I tried out an ensemble of headset microphones to see how those components affected the software's performance (to my surprise, they didn't). Finally, I scoured the voice landscape to see where else the technology is cropping up. How about wearing a computer that you speak to, or listening as your computer talks to you? Sound intriguing? My machine thinks so.

OTHER VOICES

PC MURMURINGS

ARE YOUR EYES TIRED from reading documents on screen? A text-to-speech utility will read text back to you. It's a handy way to proofread or listen to long-winded e-mails. Text-to-speech is included in all the dictation packages we review here (as well as in IBM's *ViaVoice*), and you can buy it as a stand-alone product from Eloquent Technology and Fonix. Eloquent's \$50 demo package can vocalize in seven languages. The \$99 **AV1700 Text Reader** from Fonix handles only U.S. English. Both companies say they are continually working on making the voices sound more natural. —Aoife McEvoy

• **Eloquent Technology**, 607/266-7025, www.eloq.com

PRODUCT INFO NO. 708

• **Fonix**, 801/533-6600, www.fonix.com

PRODUCT INFO NO. 709



Software That Listens

FAREWELL, long enrollment processes: Dragon's NaturallySpeaking Preferred 3.5, L&H's Voice Xpress Professional 4, and Philips's FreeSpeech 2000 all require shorter enrollment periods than their predecessors. And the programs remain as accurate as if you'd done 50 minutes of training the old way. Unfortunately, accuracy itself hasn't noticeably improved. At best, these programs still misinterpret approximately 1 word out of 20.

The minimum system requirement for Dragon is a Pentium-133; for L&H it's a PII; and for Philips it's a P166 with MMX. All companies recommend that you use at least a PII. Of course the older your PC, the more sluggishly the software will perform. But snazzy hardware isn't the only thing good speech recognition requires. Like a new puppy, dictation software behaves better if you give it ongoing training.

All three products will read your orations back to you, using their bundled text-to-speech engines. This feature can be useful for proofreading your own dictation, like your outgoing e-mail messages. Be prepared, though: All three packages' canned voices make HAL from 2001 sound like a warm and caring mainframe. (Vendors say more-natural voices are not far off.) Dragon and Philips will also let you hear your own voice played back, if you need to check what you actually said.

After all was said and done, Dragon's NaturallySpeaking stood as the clear choice. The other two packages can do some things that Dragon can't, but NaturallySpeaking's superlative word recognition and overall ease of use far outweigh any shortcomings.

Dragon NaturallySpeaking Preferred 3.5

PRO: Excellent recognition, great for business documents, powerful correction tools.

CON: No voice macro capabilities, fully integrates with only a few applications.



Dragon NaturallySpeaking Preferred 3.5 comes in two versions. The first (identified by a sticker on Dragon's packaging) is optimized for Pentium III PCs and works

only on a PIII. The second works on all other Pentium PCs as far back as a P-133.

No matter what processor your system has, you'll appreciate Dragon NaturallySpeaking Preferred's outstanding recognition. But Pentium III owners will be especially happy because they'll be able to complete enrollment in less than 10 minutes. If your PC has an older CPU, the non-PIII version of NaturallySpeaking Preferred will require you to read for 20 to 30 minutes—sorry.

After the training period, NaturallySpeaking performed exceptionally well, with recognition rates commencing at 90

percent and increasing to 95 percent as time went on. It made short work of proper names, such as "Roberts and Brown, Inc." and "Auburn Road."

I was so impressed that I tested it on some unusual names from my address book. It missed a bunch of them ("Genevieve Nagorski" came out as "Kennedy Eve endorsed the," for instance), but it was right on the mark with such tricky names as Andrew DeVries, David Ramani, and Angela Zimmerman. Its "context sensitivity" helped it properly capitalize names, titles, and streets in addresses. In fact, it even knew that it should ren-

Straight Talk

ANNIE BARROWS SAYS:

I DESPERATELY needed speech recognition software after I developed tendinitis in both hands—I was about to start writing what turned out to be a 220-page book. I rushed out to buy Dragon NaturallySpeaking. I badly wanted it to work. It didn't. It was like having a secretary who speaks only Esperanto. After extensive training, the program still recognized only about 10 percent of my dictation. Dragon's tech support asked me to turn off some of the program's features, and that helped a bit. Once I sneezed, and the program typed "the the A-A-A-AH." It took me forever to get the sneeze out of there. I swore at it—and boy, it picked up *those* words correctly. I gave up, handwrote my book, and hired a typist.



ANNIE BARROWS, freelance writer, Berkeley, California.



DAVID KNOWLTON, principal, Knowlton and Associates, Pennington, New Jersey.

DAVID KNOWLTON SAYS:

I USE Dragon NaturallySpeaking for everything: e-mail, letters, and notes after meetings. My Boston accent was quite a challenge for Dragon—especially with my flat *a*. I've dictated for most of my professional life, so inserting punctuation automatically is second nature to me—and that's a big hurdle for most new voice recognition users. My biggest problem was training because it was so tedious. But it was worthwhile. I started out getting 50 percent accuracy; one year later I'm getting over 90 percent accuracy—and that includes using a handheld dictation device. I've gotten into the habit of making sure I retrain my voice at least once a week. This ongoing enrollment is very effective—it makes the program more accurate.

der "New Hampshire" as "NH" when the words were followed by a zip code.

NaturallySpeaking also has a unique feature that lets you control the mouse pointer by voice. For instance, when you say "mousegrid," NaturallySpeaking divides your screen into nine numbered squares. Say a number, and you zoom to just that square, which in turn divides into nine more squares. That way, you can guide your cursor just about anywhere. This tool is ideal for people with disabilities that prevent them from using a mouse.

The Dragon package isn't perfect, of course. Even after several corrections, it insisted on hearing "warped" as "worked" and "glens" as "glands." Fortunately, the correction process is extremely simple: Simply say "Correct incorrect word," and up pops a correction dialog box, usually complete with one or more suggested substitutions. This window also lets you train the software to understand words it didn't recognize the first time around.

OTHER VOICES

TALK TO YOUR BROWSER

CONVERSA WEB 3.0 lets you ditch traditional Web navigation and surf the Net using your voice. You don't have to train it, so anyone can speak and surf. You can read the text link aloud instead of clicking on a link, and you move around simply by saying "go back" or "scroll up." Conversa Web allows you to access pulldown menus and check boxes, and if you've loads of hours to waste, you can enter URLs by using the military alphabet. Just say "Read me the links," and the text-to-speech capability will read the links back to you. The \$60 price includes a low-end Labtec headset. —Aolfe McEvoy

• **Conversa**, 888/487-4373, www.conversa.com

PRODUCT INFO NO. 710



Dragon integrates well with Word 97 and 2000 and WordPerfect 8. With other word processor programs, you must use Dragon's NaturalText utility, which allows you to dictate into almost any Windows app and control its menu items. You simply click on a little NaturalText icon in the Windows taskbar. This arrangement works fine, except that you lose some handy Dragon features. For instance, you can use the command "Correct that" only

to fix the last word or phrase you said, instead of being able to correct any word in the document at any time. Dragon supplies the basics for starting and closing apps and for switching between tasks, too, but it does not let you create voice macros to control software functions the way the other packages do.

Overall, I felt most

comfortable with NaturallySpeaking. Its word recognition is best of breed, and it has enough control features to be useful for simple documents like e-mails or short letters. I'd still head to the keyboard, though, for anything more complex.

• **Dragon NaturallySpeaking Preferred 3.5;**

Dragon Systems; list price \$199; 800/825-5897; www.dragonsys.com

PRODUCT INFO NO. 711

Lernout & Hauspie Voice Xpress Professional 4

PRO: Good recognition, speedy enrollment on all PCs, voice macro feature.

CON: Sensitivity to word context not on a par with Dragon's, no mouse control.

In the January review, L&H's Voice Xpress suffered from long enrollment and weak recognition. What a difference nine months can make.

As with NaturallySpeaking, PIII optimization has shortened Voice Xpress's initial enrollment times. You can get up and running by

voice in about 10 minutes, with good recognition rates. And unlike Dragon's quick-training process for PIII systems only, Voice Xpress's short enrollment works also with PCs that have older CPUs, from the Pentium II and up.

Although Voice Xpress was less attentive after training than NaturallySpeaking, it was no slouch. With simple documents like e-mail messages, it exceeded 90 percent recognition accuracy without any



MOBILE MUTTERINGS (left to right): Olympus V90, Norcom VoicePort, Olympus DS-150 (part of L&H's mobile package), and Sony's ICD-80. All four devices let you record memos on the run.

extra training. On more complex letters, however, it met some obstacles. Though Voice Xpress correctly handled state names in business addresses, it had trouble with several proper names ("Auburn Road" appeared as "all burn road," for example), and it didn't capitalize the names automatically.

Working through some corrections improved the situation dramatically. The accuracy rate of one book excerpt went from around 85 percent to better than 95 percent in four tries. As with NaturallySpeaking, saying "Correct incorrect word" calls up a correction window containing a list of alternatives. But Voice Xpress's correction dialog doesn't give you the option of playing back your own voice to hear whether you made a flub.

Voice Xpress integrates well with several Microsoft Office 97 and 2000 applications. (Dragon's software integrates with only Word or WordPerfect, and the Philips package lacks integration altogether.) You can use natural phrases to select spreadsheet cells and insert functions in Excel ("Divide cell B3 by cell C7") or to create slides in PowerPoint.

L&H's Voice Xpress Professional also lets you set up voice macros called Personal Commands. The process is not entirely intuitive, but once you get the hang of it, you can create macros that open apps, enter text, and even operate menus. For instance, just say "bizaddress," and have your business address appear like magic in your document. L&H rounds out the package with voice-enabled applets, including a Web search

utility, a calculator, and an address book.

Overall, Voice Xpress is less accurate than NaturallySpeaking, but it offers a broader range of tools for exercising near-total voice control of your PC. Though NaturallySpeaking's superior word recognition earns it the laurels, Dragon had better be looking over its shoulder.

• **Voice Xpress Professional 4;** Lernout & Hauspie; street price \$150; 800/380-1234; www.lhsl.com

PRODUCT INFO NO. 712

Philips FreeSpeech 2000

PRO: Cheapest package of the trio, macro feature lets you create custom commands.

CON: No bundled voice-ready apps, longest enrollment time, weakest recognition.

Though its accuracy improves considerably on that of its predecessor (FreeSpeech 98), FreeSpeech 2000 can't keep pace with the pricier competition. Still, the new Philips package offers a feature or two the bigger guys should not ignore.

No matter what your processor, FreeSpeech 2000 puts you through a 15-minute-plus enrollment period—and you're never fairly compensated for the effort: Initial accuracy was so-so at 85 percent. This dictation software is also somewhat harder to use than its rivals. NaturallySpeaking and Voice Xpress let you intersperse dictation and commands without a hitch—you simply pause before saying "move to the top of the document." FreeSpeech 2000, on the other hand, requires you to jump in and out of dictation mode to use commands: You must either click on a toolbar icon or say "start dictation" and "stop dictation."

And though FreeSpeech held its own on simple text consisting of common words, it struggled with more-complex business documents. It couldn't place state names in the context of addresses, for instance, spelling them out instead of using postal abbreviations. Some proper names and titles became mangled. For example, "HR director" became "a chart erect their England." When presented with a URL, FreeSpeech heard "www" as "bevy bevy bevy you."

Like NaturallySpeaking and Voice Xpress, FreeSpeech offers good cor-

rection tools, and accuracy does improve if you use them diligently over time. Unfortunately, you have to jump through hoops to make corrections. First of all, you have to select the incorrect word by using your voice or the mouse, and then you have to say "correction."

But that isn't the worst of it. FreeSpeech integrates least successfully with other applications. Navigation, editing, and formatting in Word, for instance, often need a series of short commands that the other two products are able to execute with a single phrase. For example, FreeSpeech cannot recognize "insert a two-by-five table" in Word, whereas Dragon NaturallySpeaking and Voice Xpress both can.

Warts aside, FreeSpeech's macro creation tool is the best I saw. It lets you use voice-activated commands to execute mouse movements. For example, say "blue line," and you can change the default line color to blue inside a drawing application like Micrografx Designer. Dragon and L&H should take notice.

Another bonus of FreeSpeech 2000 is its multilingual capability: Unlike its competitors, the Philips package lets you dictate in Spanish, French, German, Italian, and UK English. You can *parlare italiano* in Microsoft Word, for instance, after completing the appropriate training.

FreeSpeech 2000 comes in two versions: The \$100 package bundles a handsome, sturdy Plantronics headset. For \$50 more, you can replace the headset with Philips's own SpeechMike—a handheld dictation device with a trackball, speaker, and mike that plugs into your PC. The combo can be handy—during dictation, you can move around the document using the trackball. However, recognition accuracy with the SpeechMike was inferior to that with the Plantronics headset.

Low cost and low system requirements don't make FreeSpeech a Best Buy. Weaker recognition and a more awkward interface put it behind the other two products.

• **FreeSpeech 2000;** Philips Speech Processing; street price \$100; 888/773-3244; www.speech.philips.com

PRODUCT INFO NO. 713

MOBILE RECORDERS

Walk and Talk

DOCTORS, LAWYERS, and busy executives have used analog tape recorders for years. The portable variety made perfect instant note-taking devices, while desktop models let the owner dictate messages that a harried secretary would transcribe later. But finding that crucial thought on a 30-

minute microcassette can take seemingly forever. Digital voice recorders provide more convenient options.

With the latest portable models, you can talk for more than an hour and set up the device with multiple digital "folders" for organizing thoughts.

Devices with digital PC connection cables let you save your .wav files as archives or as attachments to e-mail.

Other units, like Dragon's NaturallySpeaking Mobile Organizer, are designed for use with dictation software.

These can even transcribe your words into editable text or action items once you return to your PC.

Just don't expect miracles. The tiniest devices have the shortest recording times. And extreme compression formats that stuff the largest number of words into the smallest space can render some recorders unusable for ►

OTHER VOICES

YOU WEAR YOUR PC WELL

GOT A SPARE \$6971 lying around? That's what you need to dress yourself up in Xybernaut's wearable PC gear. The configurable Mobile Assistant IV comes with either a head-mounted display or a flat-panel display worn on the wrist, plus a lithium ion battery. You can wear the PC itself on a waist belt or attached to a nylon vest. The gizmos weigh less than 2 pounds apiece. And the gear integrates with IBM's ViaVoice 98 technology so you can be out in the field—literally—computing with nature without lugging the extra poundage of a standard laptop. Base price is \$4995. The head-mounted MA IV with a PII-233-based PC starts at \$6971 (the flat-panel display costs \$396 less). Sounds cool, but this hands-free solution remains outrageously expensive. —Aoife McEvoy

• **Xybernaut,** 888/992-3777, www.xybernaut.com

PRODUCT INFO NO. 717



voice recognition. Even the best portables designed for transcription software don't yield recognition rates as high as you'd get by sitting at your PC and donning a headset. But if you buy a recorder with a good idea of what you plan to do with it, you'll find that these pint-size listeners can help you organize your life.

By the time you read this, L&H will offer its own \$229 mobile package—Voice Xpress Mobile Professional 4. It includes a copy of Voice Xpress software and the Olympus DS-150 recorder. Unfortunately, the package did not arrive in time for thorough testing. At first blush, L&H's mobile package is not as impressive as Dragon's, nor as intuitive. At a mere 2 ounces, the DS-150 is extremely lightweight, but the control buttons were initially confusing.

Dragon NaturallySpeaking Mobile Organizer

PRO: Works with NaturallySpeaking Preferred, syncs up with other applications.

CON: Pricy, initial recognition rates not as accurate as with a headset.



Dragon's mobile package comes with NaturallySpeaking software. The recorder itself is bigger than most units we tested, but at 2.8 ounces it still feels light in your hand.

The bundled PC connection software can save voice files in a .wav format usable by NaturallySpeaking and Voice Xpress.



JOHN CODY, owner of Omnisoft, a consulting business, Wantagh, New York.

And though the device holds just 40 minutes of transcription-quality speech, you can expand the storage with standard SmartMedia memory cards.

You can also use the Dragon recorder to create e-mail and schedule meetings in Symantec Act 4, Microsoft Outlook, GoldMine, and Lotus Notes. Due to the compression of the speech files, however, accuracy after minimal training was less impressive with the recorder than with a regular headset. It developed accuracy

rates of just under 90 percent.

• **Dragon NaturallySpeaking Mobile Organizer;** Dragon Systems; list price \$399; 800/825-5897; www.dragonsys.com

PRODUCT INFO NO. 716

Norcom Electronics VoicePort Office

PRO: Dual-purpose built-in microphone, good-quality recordings from analog tapes.

CON: Expensive; heavy; so-so accuracy; bundled with an old version of IBM's ViaVoice.

Norcom's VoicePort Office uses analog tapes because they support a purer recording than digital media does. For \$349, you get the 6.3-oz Norcom 2440 minicassette recorder, an adapter for hooking up the

Word of Mouth

JOHN CODY SAYS:

I USE Lernout & Hauspie's Voice Xpress for most of the e-mail messages and letters I write. It's quicker than typing. Enrollment is finally enjoyable—L&H now gives you some fun facts to read while you're training. At first I was getting 85 percent accuracy; now eight months later I'm getting better than 98 percent accuracy. Command and control of Windows applications by voice is not very efficient—it's a lot faster for me to move around the desktop using mouse clicks. I use L&H's text-to-speech feature to listen to my dictation as well as to hear e-mails that come to me. I'm also playing around with Voice Xpress to write Visual Basic programs by voice, but this can be tricky. Voice Xpress has a hard time understanding the grammar of the Visual Basic programming language.

2440 to your sound card, and IBM's 15-month-old ViaVoice 98 Office software.

The built-in microphone can switch between dictation and conference use. The play, stop, rewind, and record functions operate via a single sliding switch. And when the 2440's built-in mike is connected to your PC's sound card, you can use it to dictate directly to your PC.

Accuracy with the bundled ViaVoice software was mediocre from the start. I also tried the Norcom recorder with the newer NaturallySpeaking Preferred 3.5 and Voice Xpress Professional 4 software. With the Dragon software, recognition rates were horrible. I had better luck with Voice Xpress: After repeated training and volume-knob twiddling, I attained about 83 percent accuracy—but that translates into a lot of hand-editing after the fact.

• **VoicePort Office;** Norcom Electronics; list price \$349; 203/374-1500; www.norcom-electronics.com

PRODUCT INFO NO. 718

Olympus V90 Digital Voice Recorder

PRO: Ultralight and small, long recording time.

CON: Awkward for voice recognition, pricey. If you like small, check out the Olympus V90 Digital Voice Recorder. Despite its 1.6-ounce weight and diminutive size, the V90 is endowed with some big-

OTHER VOICES

MANAGE YOUR MESSAGES

GENERAL MAGIC'S PORTICO offers a service (often described as a virtual assistant) that manages your slew of voice mails, e-mails, and faxes. With the service linked to your e-mail account, you dial your designated number, and Portico reports you have, say, one new voice-mail message, six new e-mails, and one fax. You can instruct it to go through the list of e-mails, then barge in and tell Portico to "read Scott's e-mail," for instance.

Portico then lets you record a voice message, attach it to an e-mail as a .wav file, and shoot the e-mail to anyone in your address book. Pricing starts at \$10 a month. Listen to a demo at 800/767-8426 or visit www.genmagic.com. —Aolfe McEvoy





Short, Sweet and Powerful

THE SHORT-LENGTH VALUE SERIES

VL700S (17"/15.9" VIS)
VL710S (17"/15.9" VIS)
VL950S (19"/18.0" VIS)

THE FEATURES

- 0.27mm (VL700S)
- 0.26mm (VL710S)
- 0.25mm (VL950S)
- 4+1 USB powered hub*
- Short-length tube
- Flat-square screen
- MPR-II certification
- OSD & digital adjustment
- 160Hz vertical refresh rate
- 1600X1200 max. resolution**

** VL710S & VL950S only

THE BOTTOM LINE

A unique and smart combination:
integrated 4+1 USB powered
hub in a complete series of
short-tube monitor offerings.
Another first from CTX.

* USB is compatible with Windows® 98 and
may work with some versions of Windows® 95.
USB also requires USB-equipped computers
and peripheral devices.

CTX International, Inc.
Manufacturers of quality
CRT monitors, LCD
displays, notebooks and
desktop systems.

800-888-9052
www.ctxintl.com

Committed to Simplicity.



USB
powered hub

CTX

COMMITTED TO XCELLENCE

Circle 77 on card or go to www.pcworld.com/productinfo

recorder features. In low-fidelity LP mode, it provides 90 minutes of record time, while the clearer SP mode offers a reasonable 33 minutes. You can sort your ruminations into three folders, and the voice alarm system lets you play back important recordings at preset times.

Unfortunately, the V90's controls are so small that people with large hands might get that elephant-with-a-pocket-calculator feeling. You can't add extra memory, either, or transfer the V90's digital files to your PC. The only option is to attach the device's headphone jack directly to your sound card's line-in port. As a result, while the V90 makes a fine digital notepad, anyone serious about using speech software should look elsewhere.

• **V90 Digital Voice Recorder**; Olympus America; list price \$99; 800/347-4027; www.olympus.com/digital

PRODUCT INFO NO. 719

Sony ICD-80

PRO: Small and light, includes microphone jack.

CON: On the pricey side, incompatible with voice recognition software.

The Sony ICD-80 recorder puts a limited amount of recording space in a tiny digital package, providing only 48 minutes of nonexpandable storage in LP mode. It offers a couple of features that the Olympus V90 skips, however, including a mike jack, an earphone jack, and an optional Wav Link kit (\$70) for downloading the ICD-80's .wav files to your computer.

Unfortunately, the ICD-80 has one big drawback: Its .wav file format is incompatible with both Voice Xpress and NaturallySpeaking. That means you can download voice files to your PC for archival storage or to attach to e-mail. But you can't transcribe them unless you use a speech-to-text transcription service like Speech Machines' Cyber-Transcriber (877/897-3844; www.speechmachines.com). So while the ICD-80 gives you a handy way to record fresh thoughts, it won't put them into print automatically. And at \$200, it's an expensive high-tech alternative to a simple notepad and pen.

• **ICD-80**; Sony Electronics; list price \$200; 800/222-7669; www.sony.com

PRODUCT INFO NO. 720

HEADSETS

Not All High-Tech

THE BEST SPEECH recognition software in the world will transcribe like a drunken tree sloth if you use a cheapo \$10 headset mike. Dictation companies usually package their products with high-quality headsets or handheld mikes designed to excise background noise and transmit your voice's dulcet tones as purely as possible.

Dragon, I&H, and Philips all bundle perfectly good headsets with their packages. I tested seven other headset mikes and found they offer a range of features that some people may find valuable.

Andrea Electronics ANC-700

PRO: Built-in noise cancellation, compatible with many sound cards.

CON: Pricey, somewhat heavy.

The \$100 ANC-700 from Andrea Electronics uses two microphone elements—one tuned for speech, the other for background sounds. When it picks up extrane-

ous noise, the mike creates an equal but opposite cancellation signal, leaving your speech unaffected. However, we didn't notice any significant improvement in recognition with this unit over headsets

that lack noise cancellation. Andrea provides various connectors and amplifiers intended to optimize the headset for any type of sound card, even those on laptops.

ANC-700; Andrea Electronics; list price \$100; 800/442-7787; www.andreaelectronics.com

Emkay VR-3264

PRO: Low price for no-frills headset.

CON: No mute button, uncomfortable earpiece, little flex in headband.

At \$35, Emkay's VR-3264 is the cheapest headset of the lot. But you get what you pay for: A basic headset with no mute switch, lapel attachment, or detachable cord. Still, the VR-3264's bare-bones design didn't adversely affect accuracy. The headset's fit is comfortably snug—if you have a small head. Emkay also offers what it calls an *earloop* headset. The \$60 VR-3345 includes a piece of plastic to hook around your ear, but the headset is extremely uncomfortable and falls off easily—unless you have large ears.

As another alternative, Emkay sells a radio frequency wireless headset mike, the \$300 VR-3296, complete with battery charger and an earloop headset (uh-oh). The idea is that you can roam around—as far away as 20 to 30 feet—while talking to your PC. Recognition with that wireless version

was worse than with wired headsets but improved over time. Despite the innovative nature of the product, I'd save my money.

• **VR-3264**; Emkay Innovative Products; street price

\$35; 800/276-8516;

www.emkayproducts.com

PRODUCT INFO NO. 722

Labtec LVA-8550 ClearVoice Stereo Headset

PRO: Supersturdy and comfortable, mute and volume control buttons.

CON: Microphone boom can slip and requires constant repositioning.

If you don't like the feeling of generic foam on your ears, try Labtec's cushy \$50 LVA-8550 ClearVoice. It comes with two comfortable, well-padded headphones—there's no danger that this headset will ▶

OTHER VOICES

LOOK MA, NO HEADSET

DO YOU LIKE the idea of voice recognition but hate being tethered by the head to your PC? Good news: Andrea Electronics and Telex have announced stand-alone, high-quality microphones that employ digital directional array technology. These devices, which sit on your desk or monitor, are made up of a series of embedded microphone chips optimized to ignore background noise. Resembling a paper-puncher, Andrea's DesktopArray will be available in December for \$200.

Telex's \$70 Super-Directional USB Digital Microphone, the M-560, shaped like a rifle-barrel, should be available now (see photo, page 194). —Aolfe McEvoy

• **Andrea Electronics**, 800/442-7787, www.andreaelectronics.com

PRODUCT INFO NO. 714

• **Telex**, 800/328-3771, www.telex.com

PRODUCT INFO NO. 715





**MORE
PORTABILITY,
MORE
PERFORMANCE,**

**MORE
POWER
TO
YOU!**

Introducing the most powerful generation of multimedia notebooks ever, Slimnote-GX, Slimnote VX and PowerSlim. Twinhead offers a range of notebooks, from entry level to full on desktop replacement units. They provide users with rich accelerated graphics in an incredibly portable package. Enjoy all the functions of a powerful desktop multimedia system in a compact lightweight notebook format. Take your show on the road without sacrificing any of the convenience and clarity you've come to expect from much larger and bulkier notebook computers. All Twinhead products are backed with our exclusive ExpressCare program, providing you with 48-hour service and toll-free tech support. View the features and you'll see why Twinhead, a true notebook manufacturer, offers More Power to You!

West Coast: 1-800-995-8946
48295 Fremont Blvd.
Fremont, CA 94538

East Coast: 1-800-552-8946
55 US Highway 46, Unit 404
Pine Brook, NJ 07058

Twinhead

The true source for notebooks
Fax: 510-492-0820
www.twinhead.com

Slimnote-GX features:

- Intel® Pentium® II Processor 366MHz
- 14.1" TFT screen with 4MB SGRAM
- 256 MB of RAM
- AGP support
- DVD, LS-120



© PowerSlim is a trademark of Twinhead Corporation. Intel, the Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. All other trademarks are the property of their respective owners.

Circle 240 on card or go to www.pcworld.com/productinfo

slip off. Unfortunately, the mike boom itself may not stay in the position you want—so be prepared to adjust it a lot. The package includes a handy volume control button and a mute switch that you can clip to your lapel—though the small controls might be hard to find in a hurry.

• **LVA-8550 ClearVoice Stereo Headset;** Labtec; list price \$50; 360/896-2000; www.labtec.com

PRODUCT INFO NO. 723

Labtec LVA-7370 ClearVoice Collar Microphone

PRO: Great for headsetphobes, very comfortable, sturdy microphone boom.

CON: User's neck is forced to maintain fixed (and hence unnatural) position.

Hate headbands? Labtec also offers a mike you can wear around another part of your body: the LVA-7370 ClearVoice Collar Microphone. Shaped like a horseshoe, this gray collar mike fits around your neck. The sturdy boom stands upright—and after some adjusting, it tends to stay in the desired position for optimal recognition. Unlike with a traditional headset, though, the collar mike boom doesn't

Plantronics LS1

PRO: Cool-looking design, long cord, handy built-in volume and mute controls.

CON: Not particularly comfortable, can be worn only on left side, volume control spins too easily. The blue-and-silver Plantronics LS1 stereo headset provides a refreshing change from the typical black plastic and metal headsets. Though the cord is extra long (3 meters), the mute switch and volume control are situated conveniently within reach. A lapel clip lets you keep the cord tucked out of your way. My chief complaints: The unpadded hard-plastic headband was a tad uncomfortable, the volume-control knob spun so freely that I occasionally knocked it louder or softer by accident, and the boom works only on the left side of the head. But for \$50, the Plantronics LS1 could make a good companion for both serious and part-time speech recognition users.

• **LS1;** Plantronics; list price \$50; 800/544-4660; www.plantronics.com

PRODUCT INFO NO. 725



To read about Microsoft's and PC manufacturers' limited plans for voice recognition technology, visit www.pcworld.com/oct99/voice.

scalp.) Dragon was sufficiently impressed to release a new package called NaturallySpeaking Preferred USB that includes this USB headset. For \$249 you get both the headset (branded with Dragon's name) and NaturallySpeaking software.

• **USB Digital Headworn Microphone;** Telex Communications; list price \$60; 800/328-3771; www.computeraudio.telex.com

PRODUCT INFO NO. 726

VXI Parrott Switch 60V-20

PRO: You can switch between the phone and the computer by pushing a single button.

CON: Expensive, doesn't let you mute computer sound when talking on the phone.

If you spend your day split between talking to your PC and talking on the

phone, VXI's Parrott Switch 60V-20 stereo headset and phone connector combo could be a serious time saver. The 60V-20's connector lets you switch between phone and computer with the touch of a button. And that's great if you field a lot of phone calls while dictating. The 60V-20's quick-connector doodad lets you unhook yourself from the computer. That means you can walk away from your desk (with the headset atop your head) without breaking stride.

Unfortunately, the combo also has a couple of drawbacks: The built-in volume control affects only the phone's volume, not your PC's. If you're playing a music CD on your PC when a call comes in, both audio sources ring in your ears, no matter which way you push the selector button. And the lightweight headset employs a thin metal headband that could use a bit of padding. Finally, the product's \$192 price is pretty steep for what you get.

• **Parrott Switch 60V-20;** VXI; list price \$192; 800/742-8588; www.vxicorp.com

PRODUCT INFO NO. 727

For more information about all products in this article, select 910 on the product information card or visit www.pcworld.com/productinfo.

Northern California freelance writer Christopher Lindquist wishes his two dogs would listen as well as his PC. Aoife McEvoy is an associate editor for PC World.



TALK UNFETTERED: Andrea's \$200 DesktopArray (left) and Telex's \$70 Super-Directional USB Digital Microphone sit conveniently on top of the work space—great options for people who loathe headsets.

turn with you when you turn your head, so you need to watch your movements while dictating. The LVA-7370 has an on/off mute button you can attach to your clothing, but no volume control. For the \$50 list price, you also get a circular storage cradle for housing unused cord.

• **LVA-7370 ClearVoice Collar Microphone;** Labtec; list price \$50

PRODUCT INFO NO. 724

Telex USB Digital Headworn Microphone

PRO: Bypasses your system's noisy sound card, lightweight.

CON: A bit pricey, requires Windows 98.



The most intriguing product that

I looked at was the \$60 Telex USB Digital Headworn Microphone—the first USB headset. This

ultralight model includes a single earpad and a microphone that bypasses your sound card entirely, using a USB port instead. I didn't notice any significant improvement in recognition, but laptop users annoyed by inferior sound quality will love this headset's ability to sidestep their built-in sound cards. (My only gripe: The thin metal headband had a tendency to pluck hair off my already depleted

Dramatically Different

The new Millennium G400 Series high performance video cards

The Fastest

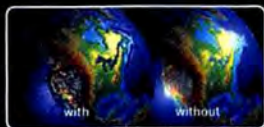
- › Explosive 3D, 2D and DVD performance
- › The only 256-bit DualBus graphics chip
- › Fast AGP acceleration and 16 or 32MB of memory



The fastest 3D performance

The Sharpest

- › True Environment-Mapped Bump Mapping for maximum 3D realism
- › Vibrant Color Quality 32-bit rendering, texturing and Z-buffering
- › 300 or 360 MHz UltraSharp DAC for flicker-free displays



3D Environment-Mapped Bump Mapping

The Most Versatile

- › Unique DualHead Display supports two independent monitors with one AGP card
- › The only card to support 8 combinations of RGB, TV and Flat Panel monitors
- › Upgradeable with MJPEG video editing and Digital Flat Panel



One AGP card supports two displays

matrox

The Millennium G400. One video card. Endless possibilities.

www.matrox.com/g400 1-800-362-9352

Features, specifications are for retail products only and may not apply to bulk versions. Please refer to original retail packaging for details. For performance benchmark details refer to www.matrox.com/demos/benchmark/index.html. *The 3dfx Voodoo 3 3000 does not support 32-bit rendering.



High tech. Low cost. One call. Compaq.

No matter how fast your business is growing, one phone call can get you everything you need. Because these Compaq Prosignia Desktops, Notebooks, and Servers are loaded with the most popular business software. Many are equipped with the super-fast Intel® Pentium® III Processor. And these Prosignia Desktops now feature a new Compaq Prosignia Internet Keyboard that gives you one-touch access to Internet tools that can fuel business growth. What's more, when you buy any of these desktops or notebooks, you'll also get a free* trial of Compaq Online Services.

You'll find that only Compaq can help you grow your business with solutions like these. Choose Compaq, and you'll get the right computing solution, 24x7 dial-up technical support, and expert guidance from an authorized Compaq reseller. So make the call that will make the biggest difference to your business. Call Compaq. Today.

*Prices shown are Compaq prices, reseller and retailer prices may vary. Prices shown are subject to change and do not include applicable state and local sales tax or shipping to recipient's destination. Advertiser configurations may vary from award-winning configurations. For hard drives and storage, GB=billion bytes. CD-ROM data transfer rates may vary: 24X Max from 150 KB/s to 3600 KB/s; 32X Max from 150 KB/s to 4800 KB/s. *Designed only to allow faster downloads from K56flex-compliant sources. Maximum achievable download transmission rates currently do not reach 56 Kbps, and will vary with certain line conditions. *Some restrictions and exclusions apply. Call (800) OK COMPAQ for warranty details. *Financing available through Compaq Financial Services (CFS) to qualified U.S. businesses, subject to credit approval and execution of CFS documentation. Monthly payments are based on 36-month Fair Market Value lease, and do not include taxes, fees, or shipping charges. Other fees and restrictions may apply and CFS reserves the right to change or cancel this program at any time without notice. *ITU V.90 modems (available on select models) are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. *Compaq Online Services: Free 30-day trial requires Internet access capability. ©1999 Compaq Computer Corporation. All rights reserved. Compaq, the Compaq Logo, and Prosignia are registered trademarks. MultiBay and PremierSound are trademarks and Better answers is a service mark of Compaq Computer Corporation. Intel, the Intel Inside Logo, and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft is a registered trademark of Microsoft Corporation. Other products mentioned herein may be trademarks or registered trademarks of their respective companies. Operating system pre-installed on all portable products. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. 1755/10/99

Compaq Customer Choice.

Because no one knows your business better than you do.

We'll configure these Compaq Prosignia PCs and Servers just the way you need them. Need extra RAM? No problem. Like a larger hard drive with your desktop? Consider it done.

You can get the PC you want by phone, online, or through any of our resellers. Or if you prefer, visit CompUSA, Office Depot, OfficeMax, and Staples.



We're here when you order, there for you long after.

Buy direct from Compaq, and you'll get something no other computer manufacturer offers: access to thousands



of authorized Compaq resellers, including our specially trained and certified SMB Solution Providers. They can:

- Install these new computers
- Help set up networks and integrate software applications
- Answer technical questions — at installation time or later
- Identify appropriate hardware and software solutions

Add all this to the ease of buying from Compaq, and you get an unbeatable combination designed to help your business grow and prosper.

COMPAQ

The Prosignia NeoServer makes **first-time networking easy.**

Buy the Prosignia NeoServer and get everything you need to network a small business in one ready-to-go system. No experience is required, and maintenance and operation are easy. Connect up to seven computers right away, or expand up to 25 computers as your business grows, and enjoy:

- **File and printer sharing** for better efficiency and consistency in your work
- **Automatic data backup** — no more worries about lost files
- **Internet access and e-mail** for keeping in touch with clients and colleagues (Internet Plus Model Only)

PROSIGNIA NEOSERVER STANDARD

- Intel Celeron Processor
- Integrated Network Operating System (25 users)
- 6GB Hard Drive¹ (expandable to 12GB)
- 8.4GB Removable Hard Drive¹ for Backup Storage
- 10/100 Base-TX Network Interface Card
- 8-port hub (10 Mb/s)
- 1-year Parts and Labor Warranty*

\$1399*

Lease for: \$47/month⁵



PROSIGNIA NEOSERVER INTERNET PLUS

Includes all of the above, plus:

- Compaq 56K V.90 Internal Modem³
- Internet access and e-mail capabilities

\$1699*

Lease for: \$57/month⁵

Leasing and warranty options that **protect your business.**

With Compaq Financial Services, you can finance 100% of your technology purchase — hardware, software, service, and even third-party options — and use the money you've freed up to grow your business. And to protect your new technology, choose from the Compaq portfolio of packaged CAREPAQ services. To find out more, give us a call.

BUYER'S Choice

Compaq Prosignia Desktop 320 with:

Intel® Celeron™ Processor 400MHz
4.3GB Hard Drive¹
32MB SDRAM (expandable to 256MB)
S500 15" Monitor (13.8" viewable)
32X Max CD-ROM Drive²
Creative Labs SBS 2-piece Speakers
Diamond nVIDIA VANTA 16MB Graphics
Prosignia Internet Keyboard
Microsoft® Word
Free³ Trial of Compaq Online Services
3-year Limited Warranty⁴

\$799*

or lease for only

\$27/month*

Buy now, supplies are limited.

PROSIGNIA DESKTOP 320

- Intel Celeron Processor 466MHz
- 6.4GB Hard Drive¹
- 64MB SDRAM (expandable to 256MB)
- S500 15" Monitor (13.8" viewable)
- 32X Max CD-ROM Drive²
- Compaq 56K V.90 Modem³
- Creative Labs SBS 2-piece Speakers
- Diamond nVIDIA VANTA 16MB Graphics
- Prosignia Internet Keyboard
- Microsoft Windows® 98 and Office 2000 Small Business®
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$1089*

Lease for: \$37/month⁵

Customize with these options:

- Upgrade to Intel Celeron Processor 500MHz: \$130
- Upgrade to S700 17" Monitor (15.7" viewable): \$55
- Upgrade to Microsoft Windows NT®: \$99

PROSIGNIA DESKTOP 330

- Intel Pentium® III Processor 450MHz
- 9.1GB Ultra ATA Hard Drive¹ 7200 rpm
- 64MB SDRAM (expandable to 256MB)
- S700 17" Monitor (15.7" viewable)
- 32X Max CD-ROM Drive²
- Compaq 56K V.90 Modem³
- Creative Labs SBS 2-piece Speakers
- Diamond nVIDIA VANTA 16MB Graphics
- Prosignia Internet Keyboard
- Microsoft Windows 98 and Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$1309*

Lease for: \$44/month⁵

Customize with these options:

- Upgrade to Intel Pentium III Processor 500MHz: \$199
- Upgrade to S900 19" Monitor (18" viewable): \$200
- Upgrade to Microsoft Windows NT: \$99

PROSIGNIA DESKTOP 330

- Intel Pentium III Processor 550MHz
- 22.6GB Ultra ATA Hard Drive¹ 7200 rpm
- 96MB SDRAM (expandable to 384MB)
- S700 17" Monitor (15.7" viewable)
- 32X Max CD-ROM Drive²
- Compaq 10/100 Network Controller
- Creative Labs SBS 2-piece Speakers
- Diamond nVIDIA VANTA 16MB Graphics
- Prosignia Internet Keyboard
- Microsoft Windows 98 and Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$1839*

Lease for: \$62/month⁵

Customize with these options:

- Upgrade to Intel Pentium III Processor 600MHz: \$425
- Upgrade to S900 19" Monitor (18" viewable): \$200
- Upgrade to Microsoft Windows NT: \$99

COMPAQ AWARDS¹

August 1999

Windows Magazine

WinList

Prosignia Desktop 320

July 1999

Windows Magazine

Winlist—Fastest Performance

Prosignia Notebook 162

July 1999

PC World

Top 20 Power Desktops

Prosignia Desktop 330

PROSIGNIA NOTEBOOK 165

- Mobile Intel Pentium II Processor 333MHz
- 4GB SMART Hard Drive¹
- 64MB SDRAM (expandable to 192MB)
- 12.1" TFT (800 x 600) Display
- 24X Max CD-ROM Drive²
- Compaq 56K V.90 Data/Fax Modem³
- Compaq PremierSound™
- Integrated AC Adapter
- 1 Li-Ion Battery
- Microsoft Windows 98 and Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$1849*

Lease for: \$62/month⁵

Customize with these options:

- Ethernet Convenience Base: \$279
- MultiBay™ Zip® Drive Upgrade: \$229
- Compaq Workstation Case: \$59

PROSIGNIA NOTEBOOK 165

- Mobile Intel Pentium II Processor 400MHz
- 10GB SMART Hard Drive¹
- 64MB SDRAM (expandable to 192MB)
- 14.1" TFT (1024 x 768) Display
- 24X Max CD-ROM Drive²
- Compaq 56K V.90 Data/Fax Modem³
- Compaq PremierSound
- Integrated AC Adapter
- 1 Li-Ion Battery
- Microsoft Windows 98 and Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$2749*

Lease for: \$92/month⁵

Customize with these options:

- Microsoft Office 2000 Professional Upgrade: \$199
- Additional Li-Ion Battery: \$129
- Compaq Global II Case: \$89

PROSIGNIA SERVER 740

- Intel Pentium III Processor 500MHz
- Dual Processor Capable
- 128MB 100MHz SDRAM (expandable to 1GB)
- 9.1GB Hard Drive¹
- Novell® NetWare® 5.0 (5 users)
- Max Internal Storage of 72.8GB¹
- 8 Bays: 4 Removable, 4 Hard Drive
- 32X Max CD-ROM Drive²
- 10/100 TX UTP NIC
- 6 Slots: 2 PCI, 4 PCI/ISA
- Server Management Software
- Pre-Failure Warranty⁴: Memory/Drives/Processors
- 3-year Limited Warranty⁴

\$3359*

Lease for: \$113/month⁵

Customize with these options:

- Upgrade to Intel Pentium III Processor 550MHz: \$341
- Add a 12/24GB¹ DAT Tape Drive: \$967
- Preloaded Microsoft Windows NT operating system also available



To buy now

Call **1-888-349-5522**

Go to www.compaq.com

COMPAQ

Save Time



Print your own time capsule now.

Go to www.officemax.com

Visit the OfficeMax Web site for a fun, family project for the new millennium - a time capsule. First, go to www.officemax.com and download and print the time capsule template. Follow the online instructions for assembling the project. Then, have each member of your family choose something to put inside the capsule. Finally, seal it.

When you finish downloading the template, make sure to

check out the incredible selection of HP supplies you can order right from the OfficeMax Web site. Everything from specialty papers to cartridges and toner can be ordered and sent directly to your home or business. When you know what you want, it's a great way to save time and a trip to the store.

Like shopping the old-fashioned way? Of course you can always visit the OfficeMax store near you for HP supplies and much more. When you do, look for a special offer for the *Family Fun in the 21st Century* HP Idea Kit. It's full of projects and ideas to help you use your HP color inkjet printer to put fun into everything your family does.

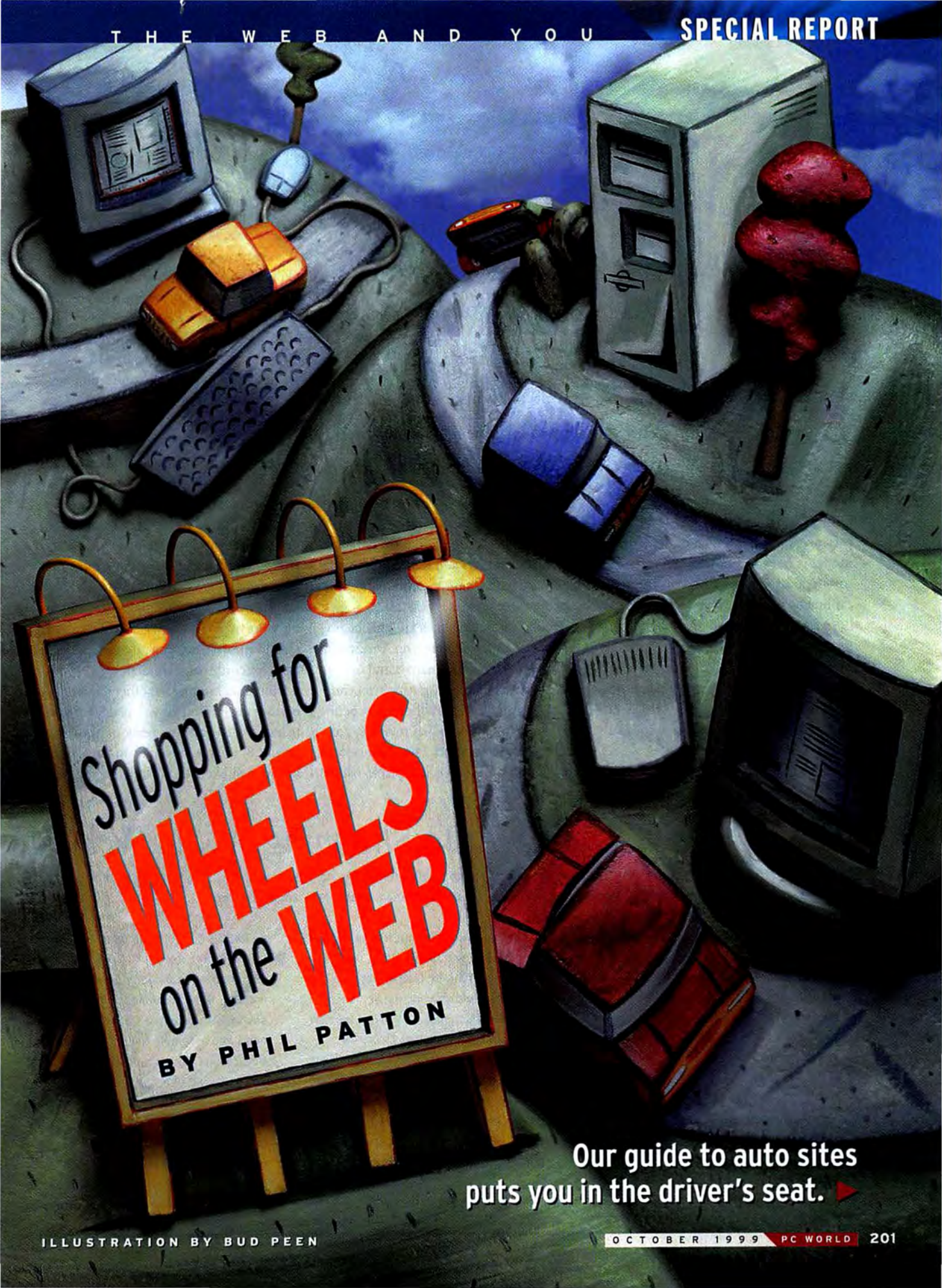


**hp HEWLETT
PACKARD**
Expanding Possibilities

Circle 99 on card or go to www.pcworld.com/productinfo

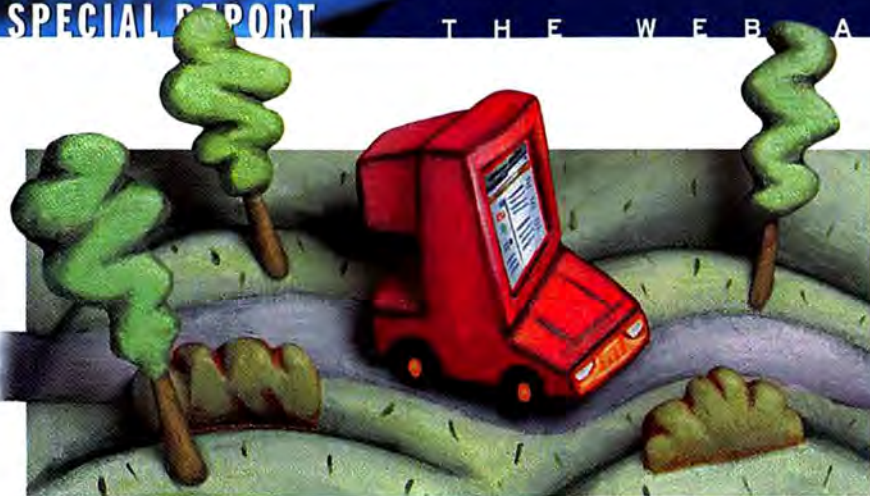
OfficeMax

For the store nearest you call:
1-800-788-8080



Shopping for
WHEELS
on the **WEB**
BY PHIL PATTON

Our guide to auto sites
puts you in the driver's seat. ►



The delivery man stands in the hallway, car keys in hand. The kid who answered the door turns and calls out to his roommates, "Any-one order a Saturn?" It's appealing to imagine that buying a car is as easy as ordering a pizza, but anyone who's been through the process

knows that it's anything but simple.

Instead, it's a tense, socially charged experience, rife with confusion about which model is best and how much it should cost. In today's customer-driven economy, car-buying methods are relics from an earlier era of bargaining—Autobytel.com founder Pete Ellis, a former dealer, calls the process "unpleasant, ugly, painful." Can the Web make it easier? Sometimes.

Web-based car buying is still in its infancy. According to respected industry analyst J. D. Power and Associates, a mere 2 percent of cars are currently "bought"

through the Internet—that is, begin with a Net-generated lead and conclude in a sale. But other sources estimate that up to 40 percent of new car buyers research and shop for vehicles on the Net—and they say the percentage is rising fast.

Online car-buying sites are only beginning to take shape. There's no Amazon in this business, no dominant brand or service. Still, major sites like Autobytel.com, Autoweb, and CarPoint offer many benefits. They're packed with reviews, customer comments, information about crash tests and model recalls, and places where

you can shop for financing and insurance.

But their approaches vary. Some emphasize picking the right car, others focus on getting the right dealer—and none puts the greatest weight on saving money. Selling cars on the Internet may eventually reduce prices, but so far the emphasis is less on price than on process. As Pete Ellis puts it, "Customers just want to buy a car; they don't want any bull." Web sites promise deliverance from car salesmen—whose public image ranks even below lawyers'. "No more greasy handshakes... no more two-tone shoes," one online service pointedly promises.

But in reality, sites point users toward brick-and-mortar dealers. Here's how it works: The dealers sign up with one or more Web services (for a fee) to gain sales leads from them. For their part, the sites accept a limited number of dealers per geographical area—often on a first-come, first-served basis. Some sites monitor their dealers to ensure that they deliver good service, but for the most part, you're on your own. In theory, fewer dealers should mean less competition—and less need for cutthroat sales tactics.

Online car hunting has other downsides besides the lurking guys in plaid. For one thing, a car is an unwieldy item to sell online. Since a seller can't pop the vehicle in the mail like a CD bought on the Net,

ILLUSTRATION: BUD PEEN

Get Your Motor Running: *Auto Shopping on the Web*

WHEEL ON OVER TO THESE hot spots—both buying sites and research locales—for an array of helpful auto-shopping features, including independent reviews, drivers' commentaries, interactive financing tools, repair information, pricing help, and much more.

CAR-BUYING SITES

- ▶ **Autobytel.com** (www.autobytel.com). The father of online car sites makes a good first stop on a car-buying excursion. It offers a rich mix of streetwise information from real owners and drivers and detailed specifications from manufacturers.
- ▶ **Autoweb** (www.autoweb.com). Clean and easy to use, Autoweb maintains a repair forum in which owners discuss their cars and their mechanics. But AutoWeb lacks standard repair or maintenance information—such as when to take your car in for service.
- ▶ **CarPoint** (www.carpoint.com). Microsoft's entry

will keep you informed, but its busy pages are so packed with information that they can become visually overwhelming. The site does have a convincing virtual-walk-around feature, though, so you can see how the car of your choice looks.

- ▶ **Cars.com** (www.cars.com). It has the choicest URL, but this site's organization is weak. For example, we found its home page sparse—and we had trouble figuring out where to start. To its credit, Cars.com does offer a minivan-load of information—and it also hosts our favorite ornery car guys, Tom and Ray Magliozzi from National Pub-

lic Radio's *Car Talk* (see page 204).

- ▶ **CarsDirect** (www.carsdirect.com). A new and as yet unproven commodity, CarsDirect offers a clean, easy-to-navigate interface and such features as the Configurator, which helps you assemble the options you want. But it won't do for cars what Dell did for computers: Dell is the manufacturer and the vendor, while CarsDirect buys from dealers and charges an average price for the area. The company claims it can save you around \$2000 per car, but when I filled in the form for the Passat, it offered me only about \$1300 off list—which, admitted-

proximity to the dealer can save shipping charges. Also, sitting in a car and driving it seem vital to the buying decision.

Some sites—especially CarPoint—try to draw you away from test drives with glitzy virtual interior and exterior walk-arounds of various models. These are fun but they don't suffice. You have to sit in a car and take it for a spin to find out how it rides—and to smell that new-car smell.

REVIVING UP

IF YOU HAVEN'T already decided on a particular car, the Web offers many places to research makes and models. Though you can find most of this data in print, you can get it faster and more easily online. Going to the Net allows for more customized research, too. You can survey all currently available two-seater sports cars, say, or compare minivans.

Where to go for research? The online wings of respected print sources such as *Consumer Reports*, *IntelliChoice*, and the Edmund's collection. First stop: Consumer Reports (www.consumerreports.org), which costs \$24 per year for an online or print subscription but is well worth it. The bible of independent car advice has a clean, equally reliable site. Next up is

IntelliChoice (www.intellichoice.com), a rating service that lets you compare four models side by side at its site for free. Finally, the Edmund's line of publications has a Web site (www.edmunds.com) built around its various published collections

purchases. Such leading car magazines as *Automobile* and *Motor Trend* also maintain large Web sites (www.automobilemag.com and www.motortrend.com, respectively), but their high-horsepower enthusiast's perspective tends to downplay the

practical issues that lie at the heart of the safety- and economy-oriented Consumer Reports site. One notable exception: Automobile Magazine Online's Layman's Manual is very useful thanks to its clear terminology.

STUDENT DRIVER

IN SEARCH OF auto enlightenment, I decided to order a 1999 version of my own car, a 1998 four-cylinder VW Passat GLS. I began my quest by visiting four of the biggest buying services—Autobytel.com (www.autobytel.com), Autoweb (www.autoweb.com), CarPoint (www.carpoint.com), and CarSmart (www.carsmart.com)—each full of reviews by experts and ordinary drivers.

All four sites work similarly. First, ▶



TRUNKFUL OF INFO: Cars.com packs its pages with help and advice.

of car reviews and prices; the site looks ugly but has a lot of useful info.

Manufacturers' sites are another option. Most offer detailed model information, but only a few—including GM (www.gmbuypower.com) and BMW (www.bmwusa.com)—help you find a dealer or direct you to showrooms for actual

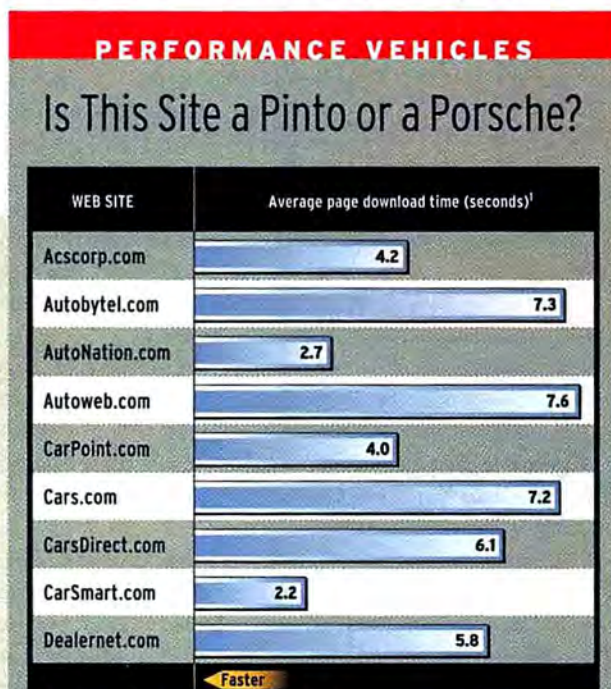
ly, is still pretty darn good. A promising site. ▶ **CarSmart** (www.carsmart.com). A lean, simple style is rare among auto sites, which makes CarSmart's no-frills approach all the more welcome. With its clear organization and "CarSmart Express" quote—a one-button spot that lets you get quick pricing—the site is easy to use.

OTHER RESEARCH SITES

▶ **Edmund's** (www.edmunds.com) and **Kelly Blue Book** (www.kbb.com). These highly respected sites offer listings of appraisal values for used cars—essential for anyone contemplating a trade-in—plus valuable consumer advice and road tests. Edmund's, the first site to have free pricing data, adds definitions of obscure dealer terms such as *holdback*. Kelly's online pages aren't blue, but they

are crammed with useful, well-organized info.

▶ **IntelliChoice** (www.intellichoice.com). A traditional rating service that publishes its findings in books and magazines, it's one of the most useful sites I visited. It looks at the total cost of ownership, not just the vehicle's purchase cost. For instance, its comprehensive ratings factor in the car's depreciation—a Daewoo may be worth only a third of its initial price after two years—as well as maintenance, repairs, insurance, and other costs. IntelliChoice also posts a



¹From July 31 to August 10, 1999, Service Metrics measures Web site performance by using a nationwide network of data collection bots that download pages at T1 speeds three times per hour, 24 hours a day, seven days a week via different ISPs.

useful collection of lease deals, including its GoldStar list of the best leases.

you choose the make and model you want from a pull-down menu on the home page. The site then sees whether a dealer in your area offers that car. Next you fill out a long form soliciting your address,



phone numbers, and desired purchase. If you're like me, you won't have the patience to enroll with more than a few sites—but they're so similar, you don't need to. Once I'd finished entering my info, I received a reference number, an online case folder, and phone numbers of real humans.

I quickly found the 1999 Passat's MSRP (\$21,200) at VW.com, and its dealer invoice price (\$19,078) at Autobytel.com. No leather seats, no sunroof, no other options. I also surveyed reviews confirming that this model stood up well against other family sedans. The Passat's high ranking on the Consumer Reports, Automobile, and Car & Driver sites further reassured me. I also like Autobytel.

com's section of reviews by individual drivers. I found only two negative comments about the Passat, one from an owner who seemed inordinately concerned about how easily the seats picked up lint.

Consumer surveys gave me additional data about my new car. The best-known of these, J. D. Power's Initial Quality Survey, measures the number of problems reported by 100 owners of each vehicle make and model during the first 90 days of ownership. Another survey, AutoPacific's Pure Product Satisfaction, takes a more benign approach, compiling owners' numerical ratings of their vehicles in response to specific questions. In this survey, available at www.autopacific.com,

Don't Buy Like My Brother...

THE GRAVELLY VOICES, the twangy Cambridge ("our fair city") accents, the wise-guy cracks at each other's expense. Who else could it be but **Click and Clack, the Tappet Brothers?** We asked Tom and Ray Magliozzi, hosts of *Car Talk* for National Public Radio (and purveyors of vehicular help on the Web at cartalk.cars.com), to provide their expert advice and piquant observations on the travails of auto hunting. Instead, we got this.

What is the dumbest thing you can do when buying a new car?

TOM The dumbest thing you can do when buying a car is to buy a new car. As you drive off

the dealer's lot, you'll hear a faint sucking sound, and that'll be the sound of cash being vacuumed out of your wallet. Buying a 2- or 3-year-old off-lease car is the

Tom, I understand that you bought your most recent car with the help of the Web. What advice can you give car shoppers about savvy online car shopping?

TOM How you shop for cars may have changed. For example, you can now find a great new or used car in your town right at a site like Cars.com. But even though finding the car may be easier, the fundamental rules are still the same: If it's a used car, get it checked out, shop around—and take a hike if you think something fishy is going on.

Should I buy a BMW Z3 convertible for my kid, or would that qualify me as a few sandwiches short of a picnic?

TOM Bad idea. Give us the Z3, instead, and we'll turn it over to your kid when he or she is ready for it—in about 20 years.

RAY Of course, by then the kid won't want it, because it'll have 20 years of pizza boxes and donut wrappers strewn all over it. It'll be covered in rust and stinking of the raccoons that move into all of my brother's cars. In the meantime, get your kid something slow, safe, and ugly—like a used Volvo, or a Schwinn.

I'm in search of my dream car, a lane-hogging, gas-guzzling, accident-heightening SUV. How

can I ensure that I won't get some wimpy cruiser when I go auto hunting?

TOM I'm philosophically opposed to huge suburban assault vehicles. They're boring, anyway. Sure, running over your first few Toyotas is fun, but then what? They're huge, they're hard to park, and they handle like boats. The pendulum will swing back from cars like the Ford Excretion...

RAY Excursion.

TOM Oops, sorry. But a dream car doesn't have to be a big car. I just got my dream car, and it's a 1952 MG TD. It's great!

RAY It scared the hell out of him when it actually started the other day.

If you were giving your magnificent mother, the lovely and patient Elizabeth Magliozzi, advice on buying the right car, what would you tell her?

RAY I'd tell her to get herself ten years worth of cab vouchers.

TOM Or I'd get her a Hyundai and hire her a chauffeur.

My father's only advice to me on buying a new car was "never let them see you sweat." But I know I should never listen to my father when it comes to cars. Tommy, what advice

HOW TO BUY A LEMON AND OTHER SAGE ADVICE FROM THE CAR TALK GUYS

best deal, because the first owner has paid for the heaviest depreciation hit, and the car probably still has another 100,000 miles in it. Just be sure to get it checked out independently, no matter how many times the dealer promises that he'd sell this one to his own mother.

RAY The dumbest thing you can do when buying a car is to listen to my brother. This is a guy who drives a car that has rust everywhere but on the windows. I love him, but at this kind of advice he's a complete zero. If you drive a lot, and you really need reliability and the latest safety features, you should absolutely buy a new car. Sure, it'll cost you a fortune, but money's not the only thing that's important in life. There's that new-car smell, too.

respondents' overall affection for their vehicles sometimes outweighs their criticism of minor quality glitches. In effect, the J. D. Power survey focuses on things gone wrong, while the AutoPacific survey focuses on things gone right.

As with any advice, you should take survey comments with a grain of asphalt. If I based my car choice strictly on the survey results, I might have opted for a Toyota Camry or a Chevrolet Lumina instead of my beloved Passat, because Volkswagen finished low in the J. D. Power survey and near the middle in the AutoPacific results. In the end, you must match your individual tastes with the particular viewpoint of each online information source. You

might be more concerned with low-end torque, while I might have a thing for cup holders. It's worth the time to find out.

S.A.D. FEATURES

ULTIMATELY, ONLINE research is no substitute for a test drive. Automakers use the term "surprise and delight features" to describe the \$2 details—from coin holders to mirror-mounted compasses—that can seal \$20,000 deals. But cars also have what might be called "shock and dismay features," and if you don't get into the driver's seat, you'll miss them. Arms-length car shopping may protect you against being unduly influenced by unimportant things—or it may prevent you

from discovering the vehicle's personality.

For instance, none of the reviews of my Passat mentioned that the cup holders are dangerously flimsy and about 1/16 inch too narrow for standard American foam cups (maybe they're metric?). Nor did my online informants reveal that the remote trunk release hides in the glove compartment, instead of resting more conveniently on the door or console, as is common these days. These are small distractions, perhaps, but the kind of details you learn by direct contact with a car.

STICKER SHOCK

MANY BUYERS imagine that there is a sacred bottom-line price on cars, close to

the invoice price. (Invoice resembles wholesale—in theory, it's the lowest price the dealer will accept.) But in reality, a car's popularity affects its price. Sought-after models like the new Audi TT sports car sell at list or above. (The list price, or MSRP, is printed on the window sticker and omits dealer fees for options and prep.) Conversely, unpopular models may go at prices below invoice.

No resource, online or off, gives a complete picture of a dealer's financial operations; dealers make money in hidden ways. Most charge buyers for some of their costs, including prep and delivery charges and the interest they

pay on funds borrowed to buy their inventory. In addition, many dealers get incentive bonuses from manufacturers for moving slow-selling models.

In the end, don't look for big savings at the major car-buying sites—the auto industry remains tradition-bound. The Web services, for all their talk, make money by funneling you to dealers who pay for the sales prospects. Manufacturers and dealers exist in a franchise relationship—making a car salesman different from, say, the seller of jeans.

The Web's effect on manufacturer-dealer relationships remains uncertain. ►

will you give your son, Alex, when it comes time for him to buy a car?

TOM I'd tell him to get something precrashed, since he's already totaled four cars by the age of 18. He has clearly inherited my brother's driving ability. The perfect car for him would be a nice 1986 Volvo DL with the trunk mashed in and fenders of different colors.

RAY And no engine.

TOM Right. That would be perfect.

Is there one thing a prospective buyer should never do in front of a car salesman?

TOM Yes. It would be a bad idea to flash a huge wad of bills and say, "I'm dying to have this car, and I'm willing to pay whatever it takes."

RAY Right. We find that bringing a baseball bat and three menacing-looking, large friends is the way to go. Just have them mill around, looking vaguely disgruntled.

It's not that all car salesmen are intrinsically bad people. It's just that the system at most dealerships pays them on commission. So, their entire life is based around trying to convince people to buy stuff, whether they want it or not. They live it, breathe it—

TOM And as the plaid pants and white belts attest, they wear it. They're commissioned, and



BOYZ UNDER THE HOOD: Ray (left) and Tom Magliozzi—*allas the Car Talk guys—know where to go looking for trouble.*

you have to be wary of commissioned salespeople, whether they're selling cars, houses, or computers.

Last—and clearly most important—question: Is there any truth to the rumor that Ewan McGregor and Leonardo DiCaprio will play you two in the forthcoming Car Talk movie?

RAY No. They're going to play our wives.

TOM We're being played by Marty Feldman and Marlon Brando.

—Karen Silver (to be played by Gwyneth Paltrow)



First, we helped give families the Internet.

**Internet access for everyone in the house, from every PC in the house.
The Compaq Presario Internet PC with Home Phoneline Networking.**

Call it Murphy's Law: Every time you try to get online, someone sneaks on before you. But now, Compaq brings you Home Phoneline Networking.⁶ It allows the whole family to access the Net from their PCs at the same time. No additional phone lines, and no waiting.

And that's not the only way Compaq makes the Net more accessible. We also let you choose how you get there, with four great Internet service providers. You can sign up immediately for Compaq.NET⁷ with unlimited access and no set-up charges for as little as \$11.99 per month, or America Online,⁸ the world's #1 online service. Sign up with CompuServe and get a \$400 rebate.¹¹ Or choose NetZero,⁹ and get free Internet access in return for receiving targeted advertising.

Now, let's talk speed. These PCs are available with super-fast digital DSL modems. So when DSL service comes to your area, you'll be able to surf at lightning speed. In addition, these PCs are also cable and satellite modem ready for ultra high speed access.

Get one today. Better yet, get one for everyone in the house.

Compaq Technology



**If you can plug in your phone,
you can network your home.**

Share Internet access, printers, files, and games with Home Phoneline Networking.⁶
It's as easy as plugging in a phone.

Save \$400

on any of these PCs with monitors, when you sign up for CompuServe Internet Service for just \$21.95 a month.¹¹ Call today for details.

Y2K: COMPAQ PRODUCTS ARE YEAR 2000 HARDWARE COMPLIANT.¹²

All prices shown are Compaq Direct selling prices and do not include applicable sales tax and shipping, are valid in the U.S. only, and are subject to change or cancellation without notice. Not all models available in retail stores. Illustrations may not accurately represent exact configurations priced. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. ¹⁰System tested using NIST YMARK2000 hardware test. Non-compliant third-party software/hardware products may affect roll-over results. For more details, see www.compaq.com/year2000. ¹¹For hard drives, GB=billion bytes. ¹²TU V.90 modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. ¹³32X Max CD-ROM Drive data transfer rates may vary from 1800 to 4800 Kbps. ¹⁴8X DVD-ROM Drive transfer rate is up to 8115 Kbps compared to 1352 Kbps for 1X DVD-ROM Drives. ¹⁵The 6.0Mb Max Digital Modem uses the ADSL/G.Lite protocol. ADSL/G.Lite/56K V.90 updates may be downloaded from Compaq's website when available. The ADSL/G.Lite/56K V.90 protocol is designed to allow faster downloads from ADSL/G.Lite/56K V.90-compliant digital sources. Availability of ADSL/G.Lite/56K V.90 services will vary by region and Internet Service Provider (ISP), and may differ from V.90 ISP services. Maximum achievable download transmission rates with ADSL/G.Lite/56K V.90 are currently unknown, may not reach 6.0Mbps, and will vary with line conditions and distance. ¹⁶Home Phoneline Networking and the Ethernet Port cannot be used simultaneously. Additional PC must have a network adapter, sold separately. AOL is a single-user system and will not allow multiple users to access simultaneously under the same account. Other Internet Service Providers may have the same restrictions. ¹⁷Requires sharing subscriber profile information and viewing targeted ads. Other terms and conditions also apply. See NetZero User Agreement for details. Compaq NET offers unlimited Internet access starting at \$11.99/month based on a prepaid 12-month service agreement. See User Agreement for additional terms.

COMPAQ

Compaq Home



Now we're making sure everyone gets to use it.



PRESARIO 5700N-466 INTERNET PC

Intel® Celeron™ Processor, 466 MHz
64 MB SDRAM, 8 MB dedicated for video memory
10.0 GB UltraDMA Hard Drive¹
32X Max CD-ROM Drive²
Integrated 2X AGP 3D Graphics
Aureal A3D Interactive 360° Positional Sound
56K ITU V.90 Modem³
JBL Pro Amplified Speakers
Creativity Action Center
128 KB Integrated L2 Pipeline Burst Cache
Microsoft® Featured Home Collection + MS® Word
Microsoft Windows® 98
Compaq CV715 15" Monitor (13.8" VA)

\$599⁴
AFTER REBATE
\$999
-\$400 CompuServe Rebate⁵
\$599

Compaq CV715 15" Monitor (13.8" VA): Add \$70

JBL Pro Amplified Speakers w/Subwoofer: Add \$49

U300 Color Inkjet Printer: Add \$99

PRESARIO 5700N-500 INTERNET PC

Intel Celeron Processor, 500 MHz
128 MB SDRAM, 8 MB dedicated for video memory
10.0 GB UltraDMA Hard Drive¹
4X CDRW-ROM Drive²
Integrated 2X AGP 3D Graphics
Aureal A3D Interactive 360° Positional Sound
6.0Mb Max Digital Modem³
JBL Pro Premium Speakers w/Subwoofer
Creativity Action Center
128 KB Integrated L2 Pipeline Burst Cache
Microsoft® Featured Home Collection + MS® Word
Microsoft Windows® 98
Compaq CV715 17" Monitor (16.0" VA)

\$999⁴
AFTER REBATE
\$1399
-\$400 CompuServe Rebate⁵
\$999

100 Mb Iomega Zip Built-In™ Drive⁶ + 1 disk: Add \$79

U300 Color Inkjet Printer: Add \$99

Tripp Lite Super 7 + tel Surge Protector: Add \$29

PRESARIO 5700T-550/3 INTERNET PC

Intel Pentium® III Processor, 550 MHz
128 MB SDRAM expandable to 512 MB
20.0 GB UltraDMA Hard Drive¹
BX DVD-ROM Drive²
Savage4 Pro 16MB 2X AGP Graphics Card
ESS Solo PCI Audio
56K ITU V.90 Modem³
JBL Pro Amplified Speakers
Digital Creativity Imaging Center⁷
Home Phoneline Networking PCI Card⁸
Microsoft® Featured Home Collection + MS® Word
Microsoft Windows® 98
Compaq CV715 17" Monitor (16.0" VA)

\$1449⁴
AFTER REBATE
\$1849
-\$400 CompuServe Rebate⁵
\$1449

Creative Labs 3D Blaster 32MB TNT-2 Ultra Accelerator: Add \$109

Klipsch v.2-400 Speakers (THX Certified) & Creative Labs Sound Blaster Live PCI Audio Card: Add \$299

Compaq CV915 19" Monitor (18.0" VA): Add \$190

Compaq Retailers

ABC Warehouse
American Appliance
American TV
Best Buy
Big City Express
Brandsmart USA
Buy.com
CDW
Circuit City
CompUSA
CompUSA.NET.com
Computer Town
Conn's
DataVision
Fred Meyer
Fry's Electronics
the good guys!
h.h. Gregg
Insight
J&R Computer World
Micro Center
MicroWarehouse
Multiple Zones
Nationwide Computers
& Electronics
Nebraska Mega Mart
Office Depot
OfficeMax
Onsale.com
Outpost.com
PC Connection
PC Mall
PC Richard & Son
PC Warehouse
RadioShack
RCS Computer Experience
Sears
Shopping.com
Staples
State Street Discount
The Wiz
Tiger Direct
Tops Appliance City
ValueAmerica.com

Visit a Compaq **Built For
You Custom PC Center** at
locations highlighted in bold.

1-800-326-6118 www.compaq.com

Buy direct from Compaq, or purchase yours at your favorite retailer.

and conditions. America Online is a registered trademark of America Online, Inc. NetZero is a trademark of NetZero, Inc. Iomega and Zip are registered trademarks and Zip Built-In is a trademark of Iomega Corporation. *Works with most third-party devices. **CD-RW Drive recording transfer rate may vary from 150 to 600 Kbps; reading transfer rate may vary from 1500 to 3600 Kbps. ***\$400 mail-in rebate requires: purchase of any eligible Compaq Presario Desktop and Compaq monitor, or Presario Notebook, and a contract commitment to a 3-year (36 month) subscription for CompuServe 2000 Premier Internet service at the monthly rate of \$21.95, a completed mail-in rebate form, a copy of a dated purchase receipt, and the UPC barcode number from outside of the computer box. All of the above must be completed and received by CompuServe within 30 days of purchase. Offer subject to credit approval and your acceptance of CompuServe Terms of Service. Membership termination prior to 36 months requires prorated repayment of the rebate plus a \$50 cancellation fee, based on the following: \$400 repayment for cancellation within month 1-12, \$300 repayment for cancellation within month 13-24, and \$200 repayment for cancellation within month 25-36. Allow 8-10 weeks from rebate approval for receipt of rebate. Offer valid in the U.S. to customers 18 years or older for purchases through 10/9/99 or while supplies last. Limit one rebate per eligible computer purchased and per CompuServe 2000 Premier Internet account. A major credit card is required for credit approval. Premium services carry surcharges, and communications surcharges may apply to AK and outside of the U.S. You may incur telephone charges, depending on your calling plan and location. CompuServe is a trademark of CompuServe Interactive Services, Inc. Full prepayment of \$790.20 is possible within the first 30 days after registration by calling 1-888-235-0889. Switching from monthly payments to prepayment is not permitted after 30 days. One year parts and labor. Labor for desktop systems is pick-up service during the first 90 days of ownership. Compaq, the Compaq logo, and Presario are registered in the U.S. Patent and Trademark Office. Intel, the Intel Inside Logo, and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. Product and company names mentioned herein may be trademarks and/or registered trademarks of other companies. Call Compaq Monday-Friday, 7:00am-11:00pm (CT). ©1999 Compaq Computer Corporation. All rights reserved.

CLUNKERS, BEATERS, AND OLD RIDES

The Best Used-Car Web Sites

THE NET MAY NOT instill fashion sense in auto dealers, but it has spurred several used-car Web sites that can hook you up with a ride online—no haggling, no browsing a dusty lot. You can research a car online to avoid schlepping to every used car lot in town. But plan to do some schlepping anyway: With used cars, a test drive is essential.

SITES TO SEE

ONE PROMISING used-car site is **Cars.com** (www.cars.com), where sliders let you change search parameters such as model year and price without having to reenter numbers. The list prices of vehicles are well organized, and you can mark cars you're interested in to compare their specs later. Cars.com's loan/lease calculator allows you to match total cost with monthly payments.

Autobytel.com's used car section includes most of the same features as Cars.com. Its primary bonus: a free "lemon check" courtesy of **Carfax** (www.carfax.com) to determine whether the vehicle you have your eye on has a history of chronic mechanical problems. At **Auto-Connect** (www.autoconnect.com), you can browse hundreds of car photos and you can link to Quicken's **InsureMarket** (www.insuremarket.com) to compare the rates of different carriers. The My Notebook feature permits you to archive auto reviews. After registering, you can put your vehicle up for

sale and edit or remove the listing on demand. Finally, you can use the site's message boards to post your opinions about various cars.

Carmax (www.carmax.com) offers an easily navigable site with few extraneous doodads. Enter such parameters as the make, model, and price range

cars. One caveat: You need to be a licensed dealer to purchase a wreck of your own.

SEARCH ELSEWHERE

PERHAPS THE MOST disappointing used car destination we encountered in our travels was Microsoft's baffling **Car-Point** (www.carpoint.com). It's



MAKE LEMONADE: Autobytel.com offers a handy lemon check.

of car you want, and get a listing of local dealers and a map for finding them. The big drawback is a smaller selection and limited geographical range.

If you hanker for a used airplane or boat, visit **Trader Online** (www.traderonline.com). The site's many tabbed pages, minuscule type, and multiple links can be bewildering and slow to navigate, but one feature enables you to get a credit analysis based on simple personal information. If you have an old clunker to ditch, log on to **Fleet Auto Sales of America** (www.800salvage.com), where you can sell damaged

easy to get lost in the site's mazelike patchwork of pages, and you may find yourself reentering query information again and again. Certain links just don't work. Still, CarPoint did provide plenty of useful information, including reviews, advice columns, reliability ratings, and extensive financing and insurance information. It also features a comprehensive (if unwieldy) consumer auto news feature listing hundreds of articles about auto topics—but unfortunately, it doesn't organize them coherently.

In the end, while no used-car outpost on the Web is perfect, all of them are less painful than the alternative: walking cold into a used-car dealership.

—Michael Grebb

Dealers fear that the Net will weaken their exclusive hold on their territories or that manufacturers will sell direct—just as Sony, for instance, sells the same PC online that its retailers sell in stores.

Despite the tight relationship between manufacturers and dealers, there are hidden ways to find bargains online. First, check with companies that have good cars but bad sales: Mazda and Nissan, for instance, labor in the shadow of Honda and Toyota. Second, look for rebates, both to dealers and to customers. Only the latter are widely publicized, but Edmund's posts lists of both types. Pay special attention to the expiration dates of dealer rebates; you may be able to work a deal with a salesperson eager to cash in.

Once you've picked your car, you must decide how to buy it—cash, finance, or lease. Many sites offer an interactive quiz to help you make that somewhat daunting decision.

IT'S STILL ABOUT DEALERS

BECAUSE MOST ONLINE services feed users back to local dealerships, the final stages of an auto hunt are much the same online as off.

My experience with the largest online service was typical—and revealing. After signing up with Autobytel.com, I got a call from Pete Monica at Douglas Volkswagen in Summit, New Jersey, about 18 miles from where I live. "Yeah, it's been kind of a rough year and a half for me with this last name," he said as he spelled it for me.

Monica informed me that if I signed up with CarPoint or CarSmart, I'd likely hear from him: Douglas services the VW territory for my area on those sites, too.

Monica's story shows how dealers are handling the Internet, which brings Douglas about 25 new customers a day. Douglas began its online department two and a half years ago with one person; it now has six. Instead of working on commission, these salespeople receive a bonus for numbers of cars sold. The price Monica gave was competitive with the one I found offline, and he hedged when I asked whether I could do better on the Net.

To convince me to buy from him, he emphasized Douglas's no-hassle pro- ▶



We love problems. We love pulling their little wings off and squishing them between our fingers.



BUGS. WORMS. VIRUSES. SO
MANY WICKED PESTS OUT THERE

ARE DETER-

MINED TO INFEST YOUR

COMPUTER AND DESTROY

YOUR WORK. FORTUNATELY

FOR YOU, WE ENJOY TOR-

TURING THOSE LITTLE DEVILS

TO DEATH. QUICKLY.

WITH STONE-GOLD

PRECISION.

McAfee® OFFICE 2000 PRO IS THE

WEAPON OF CHOICE. THERE'S NO BETTER

WAY FOR YOU TO PROTECT, OPTIMIZE, AND REPAIR

YOUR PC ALL IN ONE PLACE. AUTOMATICALLY. SO

YOU CAN KNOCK OUT VIRUSES WITH VIRUSSCAN®

THE #1 VIRUS KILLER. FIX SOFTWARE PROBLEMS



WITH FIRST AID® 2000. CLEAN AND

OPTIMIZE YOUR SYSTEM WITH MCAFEE

UTILITIES AND WITH UNINSTALLER®

PREPARE FOR Y2K WITH Y2K

SURVIVAL KIT. ENCRYPT AND SECURE EVERYTHING

WITH GUARD DOG AND PGP® SECURITY.

SEPARATELY, THESE POWERFUL PROGRAMS

COST OVER \$199, BUT NOW YOU GET

THEM ALL TOGETHER FOR JUST \$69*.

VISIT YOUR LOCAL RETAILER OR

WWW.MCAFEE.COM. THEN

GET IN ON

THE FUN OF CRUSH-

ING THOSE

NASTY MONSTERS

BEFORE THEY GET

THEIR SHOT AT YOU.



MCAFEE®
Total Protection For Your PC

Circle 164 on card or go to www.pcworld.com/productinfo



Web Wheels



DELVE INTO the fascinating history of a giant frankfurter on wheels. Pay homage to Fido and his ear-flapping, tongue-to-the-wind ways. Indulge your loathing for SUVs. Discover these top picks and other wacky vehicular Web sites at www.pcworld.com/oct99/car_buying.

cess. "We skip the negotiating and cut to the chase," he said, adding, "we offer the best price we can." But he was loath to identify that price over the phone; a supervisor said that she did not want Douglas quoted on a price. Instead of pushing purchase price, Monica and his colleagues tout "the Douglas advantage." For a Volkswagen owner, that amounts to a third year of free service on top of the two the manufacturer offers—an advantage too much like the old extended warranty gambit to impress this tire kicker.

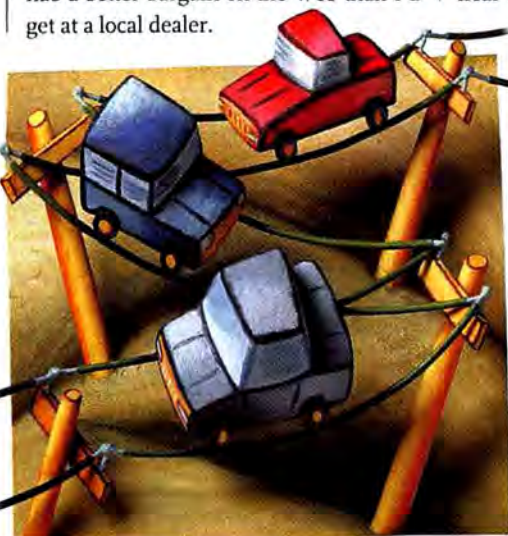
DRIVE-BY SHOPPING

SO WHY SHOULD I go 18 miles to buy from Monica, I asked, when I had another dealer nearby? Price and service, he replied. But the price I had extracted from the local guy was attractive enough. Many buyers are happy to travel a long distance, Monica countered. "We had one buyer from Minnesota. He has friends in the area and schedules visits according to maintenance intervals."

I was not convinced. Having a dealer nearby is reassuring with a car in a way that isn't true with, say, a TV. Sure, any Volkswagen dealer is obligated to honor the warranty on any Volkswagen car, no matter where it was purchased. But the dealer who sold it is likelier to do the work more quickly and cheerfully. And though maintenance intervals have grown longer—many cars can go 100,000 miles before their first tune-up—niggling problems can crop up (a leaky window gasket), and dealers fix these quickly.

I came away feeling that the online process was friendlier than the real-world experience at many dealers, but I didn't

reap huge savings by going on the Internet. True, the Passat is a popular car, and I might have gotten a better deal if I'd gone after a market laggard or dug around for dealer rebates. But given the service drawbacks of distant dealerships, I didn't nab a better bargain on the Web than I'd get at a local dealer.



MY OTHER CAR IS...

THE STATUS QUO at car-buying sites may soon change. For example, AutoNation (www.autonation.com)—a chain of non-dickering car dealers established by Blockbuster mogul Wayne Huizenga that is mounting a challenge to traditional dealers with a fixed-price policy—now plans to expand its Web site. Online customers get channeled to local AutoNation "mega-stores," dealers of various models that are part of AutoNation's grand network. And since AutoNation's dealers must subscribe to the chain's no-haggle policy, the process should be more consistent than it is with the loose network of independent dealers that the other sites rely on.

Another good new idea is CarsDirect (www.carsdirect.com), recently formed by Michael Dell and Bill Gross of Idealab and EToys fame. CarsDirect intends to purchase cars from dealers in quantity, receiving a volume discount it will pass along to the customer. The site wasn't ready for testing at press time, but it's planned for full-scale operation next year.

Finally, for around \$300, companies such as American CarBuying Service (www.acscorp.com) will handle the whole purchase. If you want car buying to be as simple as pizza buying, this may work. Still, \$300 is a lot to pay the delivery boy.

The future of online car sales seems murky. Right now, every sale passes through a dealer at some point—and that setup is unlikely to change any time in the near future. It's also unlikely that manufacturers will sell directly to customers via the Web. One possibility is that we'll see the elimination of single-brand showrooms. Autobytel.com's Pete Ellis thinks auto shopping might be better suited to car shows, where people can compare brands side by side. Or perhaps test drives will become passé. Says Ellis, "I've bought my last three cars on the Web without driving them first."

Regardless of future developments, Internet-based automobile selling remains a long way from the computer industry's standard sales model, in which customers buy directly from the manufacturer. If you're looking for a good deal and trying to buy in a more civilized way, the Web is the best place to start. But don't expect it to make everything better—yet.

Phil Patton, proud Passat owner, is the author of Dreamland (among other books), writes the "Cars" column for Esquire, and contributes to several other publications. Michael Grebb covers the Internet and telecommunications for Wired, Business 2.0, and Cablevision magazine. He drives a 1995 VW Jetta, bought from a dealer in a bad suit. Karen Silver, a senior associate editor for PC World, drives a 1981 Toyota Tercel named Dusty.

Power and Performance You Can Count On!



Introducing the Rodéo 7600 series. A top notch all-in-one notebook optimized for full productivity no matter where you go. You will not only get a speedy mobile Intel® Pentium®II processor up to 400MHz, a huge hard drive, and massive memory, but also a dazzling 14.1" screen and integrated DVD with 4MB AGP for smooth multimedia performance. To top it off, you have a choice of Windows 98 or NT Workstation 4.0 as the operating system. And all of this starts at an affordable \$2,695.

14.1" XGA Active Matrix

**Up To 256MB of
SDRAM Memory**

Integrated 2x DVD-ROM

**USB, Game Port
& Video Out Ports**

**NeoMagic 2360
With AGP Support**

**4MB 128-bit
On-chip Video Memory**

**PCI 64 Channel Wave
Processor w/Direct Sound 3D**

**Win 98 Pre-loaded with
Win NT Workstation 4.0
Included**

Windows® NT 4.0 - The right choice for business.



THREE
YEAR
WARRANTY
3

Rodéo 7620ECKDNT

Pentium®II Processor 366MHz
6.4GB Hard Drive
64MB/256MB RAM
14.1" XGA TFT
2xDVD-54K Modem

\$2,495*

Rodéo 7630ECKDNT

Pentium®II Processor 400MHz
1GB Hard Drive
128MB/256MB RAM
14.1" XGA TFT
2xDVD-54K Modem

\$2,995*

AMS Tech
Computers & Peripherals

Over a Decade
Building Great Notebooks
800-891-6808
www.amstech.com

Circle 12 on card or go to www.pcworld.com/productinfo

pcMail
800-555-6255
www.pcmall.com

CDW
Computing Solutions
Built for Business™
800-800-4239
www.cdw.com

TigerDirect
1-800-238-4437
CALL TOLL FREE
REFER TO CODE CKP

**FutureCAST
Technology, Inc.**
888-814-8388
www.fcotech.com

**MIDWEST
MICRO**
800-537-1451
www.mwmicro.com

**COMPUTERS
4SURE**
800-585-4080
www.computers4sure.com

Get it Now!
PG Connection
EVERYTHING OVERNIGHT!
800-800-0009
www.pgconnection.com

NECX
800-808-3375
www.necx.com

Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. All other trademarks and registered trade names are the property of their respective companies. AMS Tech is not responsible for errors in advertising. Prices and specifications are subject to change without notice or cause. *Estimated Street Price - Dealer Pricing may Vary.

THE DIFFERENCE BETWEEN OTHER BANKS AND US?



THE DREADED ASTERISK.

How can such a small notation hide such vital information as "\$10,000 minimum balance required" and "balances below \$999 result in .50% interest"? Beats us. Ours just says you have to open an account with a minimum deposit of \$100 to earn up to 4 times the average interest of other checking accounts. And we almost didn't even need a lawyer to write that.

So, why aren't you NetBanking?SM

OPEN FOR BUSINESS

7x24

THERE'S PLENTY OF HELP AND GREAT TECHNOLOGY AVAILABLE FOR HELPING YOU KEEP YOUR ECOMMERCE WEB SITE UP, RUNNING, AND PRODUCING, NO MATTER WHAT YOUR BUSINESS.

YOUR WEB SITE IS UP AND EVERYTHING IS RUNNING SMOOTHLY.

COMMERCE

PART II

Now what? You may be tempted to put your feet up and congratulate yourself on a job well done, but in reality your work is just beginning. Here are some of the things you should be doing to keep your Web site pro-

ductive for your company:

PROMOTE, PROMOTE, PROMOTE!

"The most common mistake I see is when a Web developer puts up a site, submits it to major search engines, and then just sits back and waits for the traffic to come pouring in," says Jessica Zame', founder of Ann Arbor, Mich.-based Webmistress@Work, an online support network for business women. "There is so much more to Internet promotion than that," she adds.

Jim Daniels, owner and president of JDD Publishing Co., a Smithfield, R.I.-based company that provides Internet promotion help for small and home businesses, agrees. "Failing to dedicate time to promoting the Web site prop-



More Than Meets the Eye.

Check the specs. Check the price. Be impressed.
Then find out why Hewlett-Packard's OmniBook XE₂ notebooks really are a better value for companies that rely on their mobile computers.

What Meets the Eye

A quick glance at the specs of these three HP OmniBook XE₂ notebooks from Value America will tell you a lot about them—and what they can do for you. They're all powered with fast Intel® mobile processors and come with the equipment most people consider essential, like CD-ROM drives, 56K V.90 compatible modems, and 16-bit Sound Blaster Pro-compatible sound with integral stereo speakers. But there's more...

Free Memory

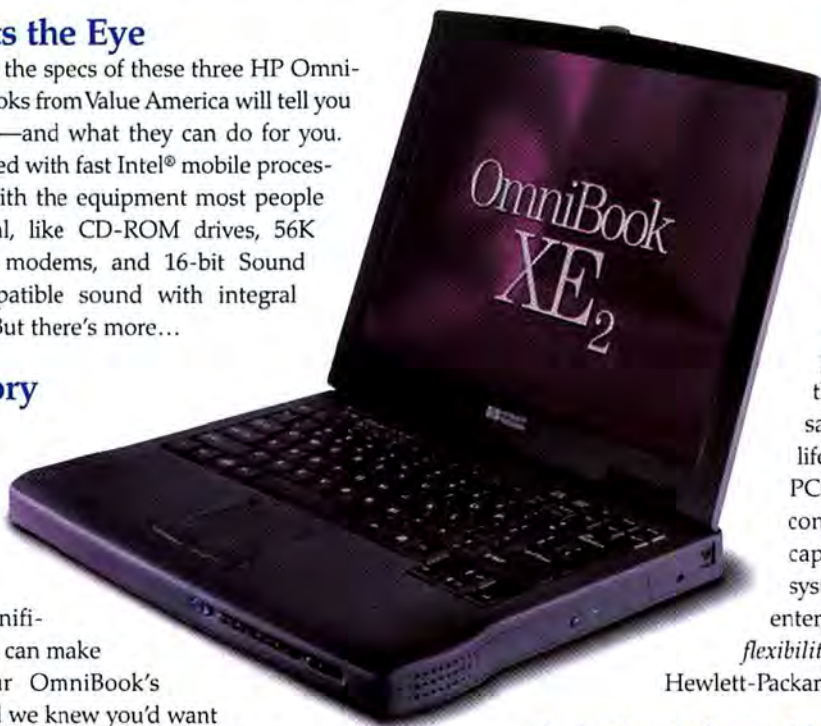
We've included 32MB of free memory with each notebook. Adding memory is the single most significant upgrade you can make to improve your OmniBook's performance, and we knew you'd want

it. So enjoy: 32MB of extra memory is on us—a \$110 value! But each of these OmniBooks will accommodate 256MB of RAM, so check out va.com for great deals on 64MB and 128MB SDRAM modules if you feel the need for speed.



Consider the Intangibles

Commitment to quality has always been a part of Hewlett-Packard's culture. Their service and support are legendary, and the OmniBook has achieved one of the lowest failure rates in the entire notebook computer industry.



2nd Glance

The things that make the OmniBook XE₂ so attractive to IT professionals aren't terribly obvious. HP knows that even though a PC is portable, it is not *always* on the road, nor does it necessarily lead an autonomous life. In fact, most notebook PCs need the same sort of control and administration capabilities as desk-bound systems. The key to successful enterprise-wide management is *flexibility*—and this is where Hewlett-Packard leads the pack.

Solutions for a Shrinking World

HP has led the way in the creation of PC management standards and tools to reduce the total cost of ownership for notebook PCs. They were among the leading architects of Desktop Management Interface. DMI provides a common framework for computers and management software, like TopTools desktop management software, included with each of these OmniBooks. TopTools lets managers oversee more than 300 PC attributes, track computer inventory, maintain network security, and respond to the needs of users—whether their OmniBooks are on their desks... or on their laps.



ValueAmerica.com (or simply VA.com) • (888) 656-8258

Intel, the Intel Inside logo, and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Quantities are limited. Visit the Value America store online or call for latest pricing and availability. Lease subject to credit approval and availability. Lease payments based on 36-month business lease with Fair Market Value purchase option, not including any fees, freight or applicable taxes, terms subject to change without notice.

Omnibook XE₂: Affordable Performance with HP Quality and Reliability

HP OmniBook XE₂ (F1756WT) with Free 32MB Memory Upgrade

- Intel® Mobile Pentium® II processor, 366MHz
- 96MB SDRAM including free 32MB upgrade (expandable to 256MB)
- 6.2GB Enhanced-IDE hard drive
- 13.3" TFT active-matrix display with 800 x 600 resolution and 24-bit color
- 24x max variable-speed CD-ROM drive
- 3.5" 1.44MB diskette drive
- Integrated V.90 56K modem
- 256KB L2 cache
- Lithium-Ion battery
- 2MB SGRAM video memory
- 16-bit Sound Blaster Pro compatible sound, built-in speakers
- Ports: USB, 9-pin serial, ECP/EPP parallel, 4Mbps IrDA-compliant infrared, PS/2 keyboard/mouse, 15-pin VGA, audio in, audio out, port replicator, RJ-11 modem
- PC Card slots: 2 Type I or 1 Type III with CardBus and Zoomed Video support
- Windows® 95 & 98
- 1-year limited warranty

\$2349

Business Lease: \$78.30/mo.*



HP OmniBook XE₂ (F1755WT) with Free 32MB Memory Upgrade

- Intel® Mobile Pentium® II processor, 333MHz
- 64MB SDRAM including free 32MB upgrade (expandable to 256MB)
- 4.1GB Enhanced-IDE hard drive
- 12.1" TFT active-matrix display with 800 x 600 resolution and 24-bit color
- 24x max variable-speed CD-ROM drive
- 3.5" 1.44MB diskette drive
- Integrated V.90 56K modem
- 128KB L2 cache
- Lithium-ion battery
- 2MB SGRAM video memory
- 16-bit Sound Blaster Pro compatible sound, built-in speakers
- Ports: USB, 9-pin serial, ECP/EPP parallel, 4Mbps IrDA-compliant infrared, PS/2 keyboard/mouse, 15-pin VGA, audio in, audio out, port replicator, RJ-11 modem
- PC Card slots: 2 Type I or 1 Type III with CardBus and Zoomed Video support
- Windows® 95 & 98
- 1-year limited warranty

\$1779

Business Lease: \$59.30/mo.*



HP OmniBook XE₂ (F1753WT) with Free 32MB Memory Upgrade

- Intel® Celeron™ Mobile processor, 333MHz
- 64MB SDRAM including free 32MB upgrade (expandable to 256MB)
- 4.1GB Enhanced-IDE hard drive
- 12.1" SVGA HPA display with 800 x 600 resolution and 24-bit color
- 24x max variable-speed CD-ROM drive
- 3.5" 1.44MB diskette drive
- Integrated V.90 56K modem
- 128KB L2 cache
- NiMH battery
- 2MB SGRAM video memory
- 16-bit Sound Blaster Pro compatible sound, built-in speakers
- Ports: USB, 9-pin serial, ECP/EPP parallel, 4Mbps IrDA-compliant infrared, PS/2 keyboard/mouse, 15-pin VGA, audio in, audio out, port replicator, RJ-11 modem
- PC Card slots: 2 Type II or 1 Type III with CardBus and Zoomed Video support
- Windows® 95 & 98
- 1-year limited warranty

\$1379

Business Lease: \$45.97/mo.*



Software Values!

McAfee Office 2000 MCO-0001-NA-200

Symantec PC Anywhere 9.0 07-00-02542

Symantec Act 4.0 06-00-00620

Microsoft Office 2000 Standard Upgrade 021-02651

Microsoft Office 2000 Standard Full Edition 021-02655

\$50 less \$50 mfr mail-in rebate	Free after rebate
Host & Remote. \$159.95 less \$70 mfr mail in rebate	\$89.95 after rebate
Puts the information you need within easy reach	\$169.95
\$209.95 less \$40 mfr mail-in rebate	\$169.95 after rebate
Word 2000, Excel 2000, PowerPoint® 2000, and Outlook® 2000	\$429.95

Value America

SHOP ONLINE AT THE MARKETPLACE FOR A NEW MILLENNIUM

VA.com · (888) 656-8258

The Value America Difference

More Convenience!

Shop with your computer or your phone, *not* your car. Value America is down the hall, not down the street. We bring the store—and the products—to you!

Better Information

Our multimedia presentations give you more information, so you can make smarter choices. What makes it worth your hard-earned money? We'll give you the details!

Top-Brand Quality

You'll find over 1,500 major brands at Value America—in a score of categories—brand names you know and trust, each one with a well-earned reputation for quality.

*Business Lease—Great Terms

36-month lease, on approved credit for qualified businesses (minimum lease amount is \$999). To arrange for a lease, credit terms, flexible lease pricing, and volume discounts, call our business-to-business team at (888) 510-8258, option #1.

OPEN FOR BUSINESS

7x24

COMMERCE

PART II

erly is a common mistake. There seems to be a common misconception among small business owners that putting up a Web site will bring in new business," he states. "On the contrary, putting up a site is just that – putting it up. It is the equivalent of throwing a big party but forgetting to send invitations. Unless people know about your new site, you cannot expect to get visitors, much less new business," he adds.

What are some effective ways to promote the site? "It is essential to do things like post to bulletin boards, forums, mailing lists, using a carefully crafted signature file containing links to your site," says Zame'. "Another effective method of promotion is writing articles for other sites, thereby becoming somewhat of an 'Internet' celebrity."

Daniels suggests networking in discussion groups, Ezine publishing, and paid promotion methods such as Opt-in E-List Rental and affiliate marketing.

KEEP IT FRESH AND CURRENT

Martin Schedlbauer, former CEO and CTO of Maynard, Mass.-based Technology Resource Group Inc., and currently senior director, educational prod-

uct development, educational services of San Jose-based BEA Systems Inc. (which acquired TRGI in July) believes that since the Web site is a reflection of the company, it is vital that the information on the site be accurate and current. As a result, the TRGI Web site content is kept up-to-date "to the hour." For instance, when BEA Systems acquired TRGI, Schedlbauer says, "The press release was on the wires at 9:02 a.m. and on the TRGI Web site at 9:05."

"Never stop building the site," Daniels advises. "Get into the habit of adding a page or two to your Web site every week. Adding pages regularly will increase your exposure by giving your site more points of entry. This also shows customers your site is not stagnant."

Special promotions and contests are other ways to keep the site fresh. "To keep our site interesting we add lots of promotions and contests, including special discounts available only through the Web site," Schedlbauer says. "We also publish last-minute availability of the public courses that we offer."

Laura Franklin, founder of Kittanning, Pa.-based WebCrafts by Laura, says, "I make changes to my Web site several times a month – adding new links, changing graphics." She adds that an ever-changing site keeps people coming back to see what is new.

The Power of Promotion

Here are some ways to put the power of promotion to work for you and your Web site:

Submit articles to other sites. "This can be one of the most effective and interesting ways to promote yourself and your site online," writes Zame', of Webmistress@Work, in her Web-posted article, "Gonzo PR: Mastering the Art of Shameless Online Self Promotion." Many sites are hungry for useful content, and are eager to post articles written by "outside" authors. Write about a topic close to your business area, she advises, so you'll have a chance to mention your business and your URL in the article. Then, submit your article to sites that appeal to your target audience.

She also recommends that you include an author's box at the end of each article (which should include a link to your Web site), and require anyone who publishes the article to include this box.

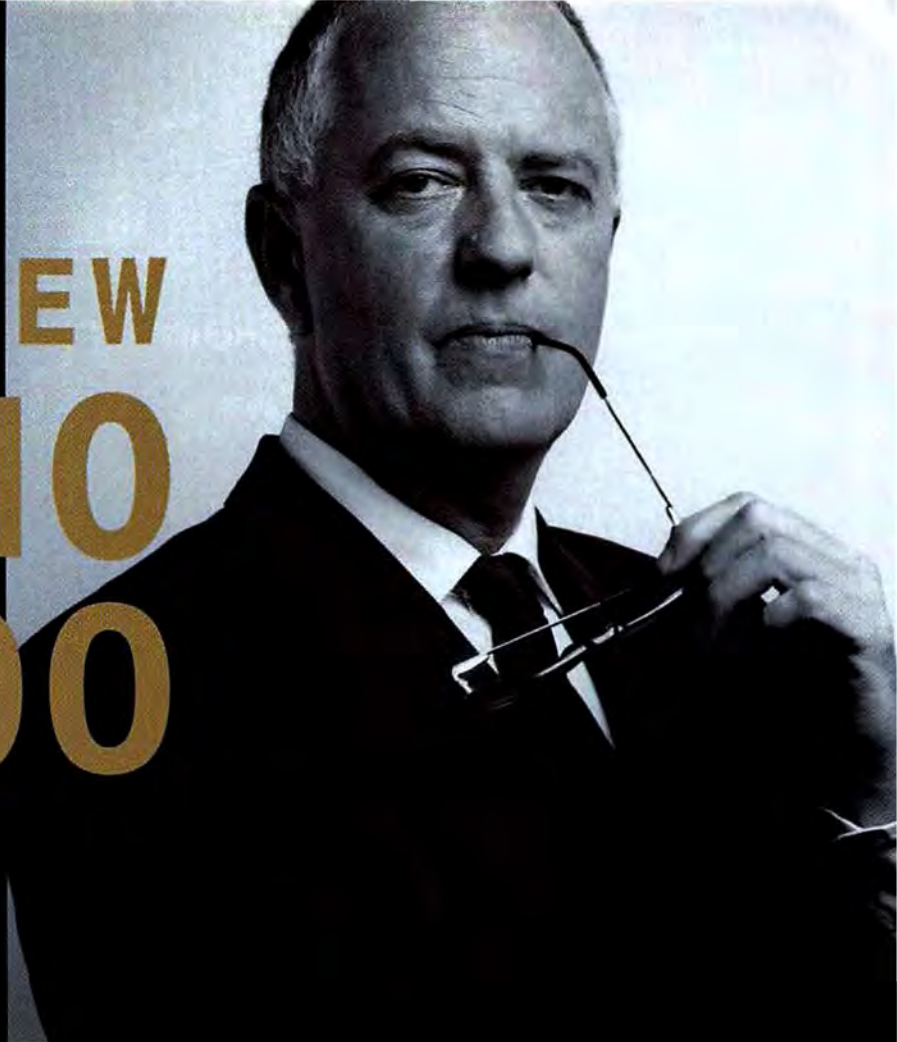
Network in discussion groups. Daniels, of JDD Publishing Co., says this is "one of the most underestimated areas of Internet marketing." Find an email discussion group that reaches your target audience and, as Daniels puts it, "Post something intelligent that is directly related to the list topic. Just be sure to steer clear of

blatant advertising."

Franklin, of WebCrafts by Laura, says, "Since I've been active on mailing lists with other women in business, my site traffic has quadrupled!"

Ezine Publishing. The beauty of publishing an online magazine or newsletter is there are no printing charges or postage fees. "I've been publishing my *BizWeb E-Gazette* since August of 1996," says Daniels. "It allows me to stay in touch with the lifeblood of my business – my prospects and customers."

THE NEW VISIO 2000



COMPLETELY REFINED SO EVEN THE BIG WIGS CAN USE IT.

Suffice it to say, new Visio® 2000 technology is so intuitive, you'll find it being used in some unlikely places – even corner offices. And since Visio 2000 builds on Microsoft technologies like Windows® Installer, deployment and management are easy and cost efficient. Finally, an approachable drawing and diagramming platform flexible enough for everyone. Visit the Visio Upgrade Center today for information on all Visio products, or contact your corporate reseller about Prema™ volume licensing.

upgrade.visio.com



You're **Y2K-ready**
and your business is safe...right?



Are you sure you see
all the risks?

BindView's business and technology risk management software ensures you have no surprises—now or in the new millennium.

It's what you don't see that can hurt you. BindView gives you insight into the complete picture, with easy-to-use reporting and analysis tools for heterogeneous network environments. We enable you to keep an eye on all your technology risks. **Administration. Configuration. Asset tracking. Security.** And of course, Y2K.

Y2K compliance is dynamic, slippery and complex—and is just one of the risks your enterprise faces everyday. Configuration and administration problems. Inventory mismanagement. Internal and external security threats. BindView's products simplify business and technology risk management by reducing the complexity of complex

systems. We help you manage the daily battle of keeping your network free from danger. And it's protection that will take you to the year 2000—and far beyond.

Who is BindView? We're the company that has helped over 4,000 companies worldwide maintain the integrity and security of their multi-platform client/server networks. Please visit our Web site to learn more about our business and technology risk management solutions, and download a free copy of *bv-Config*, an integrated management utility for Windows NT® at <http://www.bindview.com/lo5.html>. Or call (888) 837-4223 to speak with a BindView representative.

BINDVIEW®
DEVELOPMENT



In addition to being timely, Web site content should also be useful. "For example, a site that sells baby blankets could run parenting tips, articles, advice for first-time mothers, etc. This also serves to make your site more memorable than a site that only sells products," Zame' says.

Net.B@nk™

member FDIC www.netbank.com

Providing interactive forms that customers can use to conduct business day or night is another useful service. Michelle A. Dunn, president of M.A.D. Collection Agency in Holderness, N.H., says she added interactive forms for placement of accounts online. "More accounts are being placed this way by both new and existing clients," she says.

BUILD A COMMUNITY

Another effective way to build repeat business is to build a community. "Build a community and you're building a business," Daniels states. "If enough gather and return to your site, finding a way to create revenue is easy. When you create an online community, a solid customer base comes along for the ride."

"Perhaps a bulletin board would tie in nicely at your site," Daniels suggests. "After all, a Q&A forum fits in well with any subject matter. You won't find a better way to get repeat visitors to your site."

One company that proves the success of this approach is FindLaw.com based in Mountain View, Calif. According to co-founder and CEO Tim Stanley, this Web portal focusing on legal and government topics currently enjoys 13 million page views and over one million unique users per month.

FindLaw was started by Stanley and his wife, Stacy Stern, in early 1996, and initially put law reviews online. "Then we started adding community information," Stanley says, "including free public information on case law." Now FindLaw offers community-oriented tools such as free email, 100-plus community message boards, mailing lists, and a secure document management utility. "The message boards and mailing lists drive a lot of return traffic," Stanley states. "In January 1999 we expanded our focus to include the small business and consumer communities. The result has been 50% growth since December of 1998."

Sometimes the "community" doesn't need to be related to the business. Franklin, whose company provides online business, custom graphics, and Web design, says she also lists recovery resources on her Web site – with a whole section devoted to resources for domestic/child/sexual abuse. "Much of my traffic is generated from these personal resource pages," she says.

A PAIR OF WINNERS

There are two Web sites in particular that stand out in terms of intelligent design and, ultimately, service to their customers, namely Value America (www.value-america.com) and Net.B@nk (www.netbank.com).

With startling ease of use and ease of navigation, Net.B@nk's site offers customers the easiest possible way of conducting a wide range of banking and investment services. And because all these services occur in cyberspace, away from the expensive brick and mortar of typical banks, Net.B@nk offers premium interest rates to its online depositors.

Value America, the online superstore, has parlayed an intuitive, clutter-free site designed to deliver the combined friendliness of a local merchant, the wide selection and low prices of a superstore, and the quality and service customers get when dealing



directly with a brand name manufacturer. And like Net.B@nk, all transactions occur in cyberspace, passing valuable savings directly on to the consumer.

So how can you tell if your hard work is paying off? One way, Zame' says, is through traffic statistics via a "good log program. This can tell you how many visitors you are receiving, how they found your site, and much more," she explains. "A site may not turn a profit right away, but if traffic is good, word-of-mouth could help to increase sales."

To measure the success of her Web site, Dunn says she looks at the number of hits and accounts placed through interactive forms. "I also ask every client who calls how they heard about me," she says. "Most of the time it's through the Web."

Daniels looks at measuring success another way. "A Web site is productive if it is meeting your objectives," he says.

Supplement Sponsors:

Net.B@nk
www.netbank.com

Value America
www.valueamerica.com

Here's your
chance to tell

America Online
Autodesk
Canon
Computer Associates
Epson
ForeLogic
GoldMine
Hewlett-Packard
Inc. Magazine
Intel
Micrografx
Microsoft
Tektronix
Visio
WRQ
Xerox
Ziff-Davis

they don't
know beans.

1998 CATTLE BARON SPONSORS



Autodesk

Canon

COMPUTER ASSOCIATES

EPSON

FORELOGIC

GOLDMINE

HEWLETT
PACKARD

Inc.

intel

Microsoft

MICROGRAFX

Tektronix

VISIO

WRQ

X

ZIFF DAVIS

What do all these companies have in common? They all think they can serve up a meaner bowl of chili than your company can. So, are you going to just sit there and take that? We didn't think so. That's why we're inviting you and your company to participate in the Micrografx Chili for Children Cook-Off. It's the premier event of COMDEX/Fall, benefiting the National Center for Missing and Exploited Children. And this year, we've added a little spice to our website. In the spirit of heated competition, we've engineered a customizable e-mail that you can send to your friends at other companies, challenging them to sponsor at one of the two top levels. After all, what would a chili cook-off be without a little heat?

For more information, contact Kate Potts @ 972-994-6413 or visit www.micrografx.com/chili/nobeans

Sponsorships: \$3,500; \$9,500; \$19,000; and \$35,000. Competition is limited to sponsors in the top two levels (\$19,000 and \$35,000) only. © 1999 Micrografx, Inc. All rights reserved.



MICROGRAFX



With Egghead.com, every business receives its own living, breathing personal representative.

It's just one of our services designed to help you save time with computer equipment purchases. For a quote on your next order: Phone: 800-264-0900 E-mail: quotes@egghead.com Fax: 360-816-7320.

egghead
com

THE HOTTEST TECHNOLOGY IN THE INDUSTRY.



ASSEMBLED IN USA



888.909.CROSS
www.crossline2000.com



CROSSBOOK X Celeron™ 400MHz **\$1498**

- Intel® Celeron™ Processor 400MHz
- 12.1" (SVGA) or 13.3" TFT (XGA) Available
- 64MB SDRAM Memory
- 6GB Ultra ATA Hard Drive
- 4MB SGRAM video
- Built in 3D audio, 1.44MB Floppy
- 24X CD-ROM, Built in sound and speakers
- 56K v.90 Fax Modem
- Personal Touchpad
- USB, Fast IR Ports
- AC-adaptor, carrying case
- Smart Lithium Ion battery
- Windows 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Call for Pentium II Notebook Pricing

VOYAGER V CYRIX MII™-333 **\$338**

- 32MB SDRAM Memory
- 6.4GB Ultra ATA Hard Drive
- 3D 4MB Video Graphics Shared
- 44X CD-ROM Drive
- 3D Stereo Sound
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- Multimedia Stereo Speakers
- Mini Tower Case
- 104 Keyboard, Microphone & Mouse
- 3 Year Limited Warranty
- No OS

CYRIX MII™-366 Processor	\$348
AMD-K6™-2/400	
w/3DNow!™ Technology	\$378
AMD-K6™-2/350	
w/3DNow!™ Technology	\$348

VOYAGER XV AMD-K6™-2/400 **\$818**

- 512K L2 Cache
- 64MB 100MHz SDRAM
- 10GB Ultra ATA Hard Drive
- 17" .27dp Digital Monitor
- Intel i740 8MB 3D AGP 2X Video
- 44X CD-ROM Drive
- Aureal A3D™ PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Speaker Sound System
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone & Mouse
- MS® Windows® 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

CYRIX MII™-366 Processor	\$788
CYRIX MII™-333 Processor	\$778
AMD-K6III/450	
w/3DNow!™ Technology	\$948
AMD-K6III/400	
w/3DNow!™ Technology	\$888
AMD-K6™-2/450	
w/3DNow!™ Technology	\$828
AMD-K6™-2/350	
w/3DNow!™ Technology	\$788

VOYAGER GX AMD-K6™-III/450 **\$1298**

- 512K L2 Cache
- 128MB 100MHz SDRAM
- 13GB Ultra ATA Hard Drive
- 19" .27dp Digital Monitor
- ATI Fury 32MB
- 6X DVD-ROM Drive
- Aureal A3D™ PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone
- MS® Windows® 98 & Intelli-Mouse
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

CYRIX MII™-366 Processor	\$1178
CYRIX MII™-333 Processor	\$1168
AMD-K6III/400	
w/3DNow!™ Technology	\$1248
AMD-K6™-2/450	
w/3DNow!™ Technology	\$1228
AMD-K6™-2/400	
w/3DNow!™ Technology	\$1218
AMD-K6™-2/350	
w/3DNow!™ Technology	\$1188

ENDEAVOR MX Celeron™ 366MHz **\$658**

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 32MB 100MHz SDRAM
- 6.4GB Ultra ATA Hard Drive
- 15" .28dp Digital Monitor
- AGP 3D Image w/ 8MB Video
- 44X CD-ROM Drive
- Aureal A3D™ PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- Power 3D Speaker System
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone & Mouse
- MS® Windows® 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 600MHz	\$1428
Pentium® III Processor 550MHz	\$1158
Pentium® III Processor 533MHz	\$1048
Pentium® III Processor 500MHz	\$918
Pentium® III Processor 450MHz	\$818
Celeron® 500MHz with 128KB	\$778
Celeron® 433MHz with 128KB	\$728
Celeron® 400MHz with 128KB	\$678

ENDEAVOR EX Pentium® III 450MHz **\$1058**

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 128MB 100MHz SDRAM
- 10GB Ultra ATA Hard Drive
- 17" .27dp Digital Monitor
- Intel i740 8MB 3D AGP 2X Video
- 44X CD-ROM Drive
- Aureal A3D™ PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone & Mouse
- MS® Windows® 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 600MHz	\$1648
Pentium® III Processor 550MHz	\$1388
Pentium® III Processor 533MHz	\$1278
Pentium® III Processor 500MHz	\$1148
Celeron® 500MHz with 128KB	\$998
Celeron® 433MHz with 128KB	\$958
Celeron® 400MHz with 128KB	\$918
Celeron® 366MHz with 128KB	\$898

ENDEAVOR GX Pentium® III 533MHz **\$1678**

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 128MB 100MHz SDRAM
- 17.2GB Ultra ATA Hard Drive
- 19" .26dp 1600x1200 Digital Monitor
- TNT 16MB AGP Video Graphics
- 3dtx Voodoo12MB 2X AGP Video
- 6X DVD-ROM Drive
- Aureal A3D™ PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- Multimedia Keyboard
- MS® Windows® 98 & Intelli-Mouse
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 600MHz	\$2058
Pentium® III Processor 550MHz	\$1798
Pentium® III Processor 500MHz	\$1548
Pentium® III Processor 450MHz	\$1458
Celeron® 500MHz with 128KB	\$1398
Celeron® 433MHz with 128KB	\$1358
Celeron® 400MHz with 128KB	\$1318
Celeron® 366MHz with 128KB	\$1298

ENDEAVOR SX Pentium® III 550MHz **\$1898**

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 256MB 100MHz SDRAM
- 20.2GB Ultra ATA Hard Drive
- 19" .26dp 1600x1200 Digital Monitor
- ATI Fury 32MB
- 6X DVD-ROM Drive
- Aureal A3D™ PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- Multimedia Keyboard
- MS® Windows® 98 & Intelli-Mouse
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 600MHz	\$2198
Pentium® III Processor 533MHz	\$1828
Pentium® III Processor 500MHz	\$1698
Pentium® III Processor 450MHz	\$1598
Celeron® 500MHz with 128KB	\$1548
Celeron® 433MHz with 128KB	\$1498
Celeron® 400MHz with 128KB	\$1458
Celeron® 366MHz with 128KB	\$1438



CROSSLINE
1.888.909.CROSS

(1 - 8 8 8 - 9 0 9 - 2 7 6 7)
Tel: 562.921.0752 • Fax: 562.921.0183

PC WORLD

TOP 100

222 Power PCs



228 Midrange PCs



232 Budget PCs



238 Notebooks



242 Home PCs



248 Printers



251 Scanners



253 Monitors



257 Graphics Boards

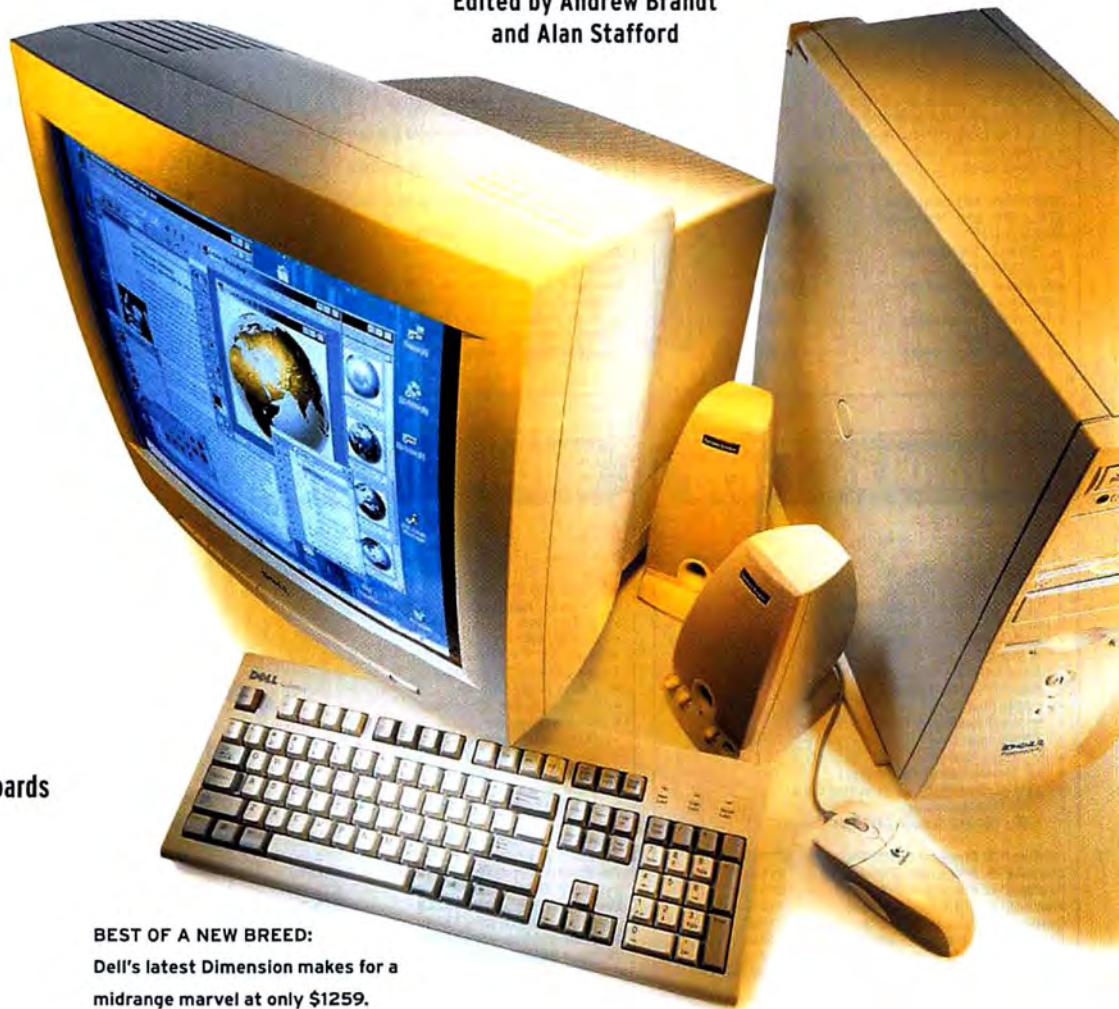


259 Modems



More Choices: **The New** TOP 100

Edited by Andrew Brandt
and Alan Stafford



BEST OF A NEW BREED:
Dell's latest Dimension makes for a
midrange marvel at only \$1259.

BIG CHANGES ARE AFOOT in the *Top 100*. Based on feedback from subscribers, we've redesigned several areas of the section to make it easier to read and use. As a result, the pages in which we review desktop computers, home systems, and notebook PCs look very different. We've also added a new product category to the mix: *Top 10 Scanners*.

Our most obvious alteration to the *Top 100* section affects desktop PC reviews. This month we introduce a third tier—midrange PCs (see page 228)—to the existing power and budget layers. With three desktop PC tiers, we can cover a wider range of systems and keep the systems within each category more closely related in price and features.

To accommodate the new midrange section, we've reduced the number of desktop systems covered in the power and budget categories. Formerly we ran a pair of *Top 20* charts spanning six pages with three charts each; now you'll find three sets of *Top 10* PCs, each with a single, more efficient table. We think the modification will make it easier to compare PCs.

In addition, every system on those three charts now gets a write-up. We tell you the best and worst aspects of each system, and let you know each machine's best use.

The result: You're given the same information as before, just in a more digestible, more condensed format.

Furthermore, each of these three desktop sections includes a short article highlighting a new computer trend or a technology that you're likely to see in desktop systems soon.

Also in the *Top 100*, we've overhauled the *Top 10 Home PCs* and *Top 10 Notebook PCs* sections to give you the same information as before in a single table. In the coming months, these sections will become the *Top 15 Notebook PCs* and *Top 15 Home PCs* and will be presented in the new condensed format.

OUR NEWEST TOP 10 CATEGORY

THIS MONTH we also introduce our *Top 10 Scanners* review (see page 251). Rapidly advancing technology, retreating prices, and a glut of scanners on the market can make shopping for a scanner a chore. We

provide reviews and technology overviews to ease the decision-making process.

On our debut chart, USB is in full force. Among the scanners we tested, six of the ten chart makers use a USB interface.

The best of these products are able to scan both photographs and slides.

Acer's quick new SOHO scanner, the \$149 AcerScan Prisa 620UT, comes bundled with one adapter for scanning transparencies and several others for scanning slides.

Interestingly, though USB may be on the rise for scanners targeted at small businesses or homes, corporate users still prefer SCSI for its speed. Expect to see more scanners with a dual USB/SCSI interface in future reviews.

NEW BEST BUY PRINTERS

THIS MONTH's *Top 10 Printers* chart saw plenty of action. Our new number-one SOHO laser, the \$499 DocuPrint P12 from Xerox, delivers handsome prints



POINT YOUR browser to www.pcworld.com/top400 for late-breaking reviews on desktop computers. In PC World Online's *Top 400* section, you'll find comprehensive reviews and ratings for products in 16 different categories. You'll also find product reviews that are not available in print.

quickly—at a reasonable price. NEC's \$799 SuperScript 1800, our new corporate Best Buy, is the second-cheapest business laser on the chart. In the past few months, we've seen the prices of low-end color lasers approach those of high-end monochrome printers.

—Joel Strauch



BANNER SCANNER: AcerScan Prisa 620UT offers lots for \$149.

Joel Strauch is a freelance writer based in the San Francisco Bay Area. Senior Editor Anita Epler; Senior Associate Editors Cameron Heffernan, Karen Silver, and Alan Stafford; Associate Editors Grace Aquino, Andrew Brandt, Michelle Campanale-Surkan, and Aoife McEvoy; Staff Editor Mick Lockey; and Editorial Assistant Kalai Murugesan contributed to this month's *Top 100*. Testing for the *Top 100* was performed by Ulrike Diehlmann, Robert James, Elliott Kirschling, Jeff Kuta, Nancy Miller, and Mike Salayko of the PC World Test Center. See page 14 for contact information. ▶

YOUR GUIDE TO THE TOP 100

QUESTIONS ABOUT OUR CHARTS? The following information should answer most of them.

How do the charts work? Each month we test a large number of PCs, printers, scanners, monitors, graphic boards, and modems, and compare them with previously reviewed products. Only the best products land on the *Top 10* charts, which are refreshed monthly. System configurations are shown as tested. Vendors may have since changed components.

What does the overall rating mean? This 100-point scale reflects results from our hands-on evaluations and performance tests. A score in the 90s is exceptional, while one in the 70s is above average.

What does the PC WorldBench 98 score mean? It's a measure of how fast a PC is in relation to our baseline machine, a Gateway PMMX-200 configured with 32MB of RAM, a 2GB hard drive, and 512KB of secondary cache. A PC that scores 200, for instance, is twice as fast as the baseline system.

Where do the scores for reliability, support quality, and support policies come from? Reliability and support quality scores are based on surveys of *PC World* readers and anonymous support calls made by *PC World* staff. The policies score is based on vendor support policies.

TOP 10 POWER PCs

	SYSTEM (\$2000 AND ABOVE)	Month tested	★ Overall rating	Street price (as of 7/23/99)	PC WorldBench 98 performance score ¹	Base configuration ²
1	 Dell Dimension XPS T550 800/388-8542 www.dell.com	Aug 99	90	Average: \$2475	Outstanding 309	Very good: Pentium III-550, 128MB of RAM, 512KB L2 cache, 22.6GB hard drive, midsize tower case, Windows NT 4.0
2	 Dell OptiPlex GX1p 500 800/388-8542 www.dell.com	June 99	89	Inexpensive: \$2294	Good 284	Very good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 20GB hard drive, midsize tower case, Windows NT 4.0
3	Micron Millennia Max 500 800/642-7667 www.micronpc.com	Apr 99	86	Inexpensive: \$2327	Very good 237	Very good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 22.6GB hard drive, midsize tower case, Windows 98
4	Gateway GP7 500 800/315-2536 www.gateway.com	(NEW)	85	Average: \$2419	Very good 290	Very good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 18GB hard drive, midsize tower case, Windows NT 4.0
5	Gateway E-4200 500 800/315-2536 www.gateway.com	Apr 99	84	Average: \$2405	Very good 235	Very good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 22GB hard drive, midsize tower case, Windows 98
6	NEC PowerMate VT 300 888/632-8701 www.neccomputers.com	Aug 99	84	Very inexpensive: \$2113	Very good 231	Good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 13GB hard drive, minitower case, Windows 98
7	Compaq ProSignia Desktop 330 800/345-1518 www.compaq.com	Sept 99	83	Average: \$2462	Outstanding 246	Very good: Pentium III-550, 128MB of RAM, 512KB L2 cache, 22GB hard drive, midsize tower case, Windows 98
8	Micron Millennia 550 800/642-7667 www.micronpc.com	(NEW)	83	Expensive: \$2799	Outstanding 248	Very good: Pentium III-550, 128MB of RAM, 512KB L2 cache, 18GB hard drive, midsize tower case, Windows 98
9	HP Vectra VL18 MT PIII-550 800/752-0900 www.hp.com/desktops	Sept 99	82	Inexpensive: \$2239	Outstanding 244	Very good: Pentium III-550, 128MB of RAM, 512KB L2 cache, 13.5GB hard drive, midsize tower case, Windows 98
10	IBM PC 300PL 800/426-7255 www.ibm.com/ibmpc	Aug 99	81	Average: \$2559	Very good 232	Very good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 20.4GB hard drive, midsize tower case, Windows 98
 Best Buy		Percent of overall rating ▶		Price 15 percent	Performance 20 percent	Base configuration 10 percent

¹ A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 221.

² We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compact (shorter than 5 inches).



POWER SEEKERS REJOICE. Our new *Top 10 Power PCs* class emphasizes performance more than ever, though the systems in this category are also pricier than ever. For example, Micron's new Millennia 550 costs \$2799, but this Millennia sped to an impressive score of 248 on our PC WorldBench 98 tests, making it one of the fastest Pentium III PCs running Windows 98 we've tested. The reigning performance champion, Dell's Dimension XPS T550, costs \$2475 and scored a blistering 309 on PC WorldBench 98.

1 DELL DIMENSION XPS T550

WHAT'S HOT: For the third month running, Dell's top-of-the-line Dimension system stands at the head of the power PCs chart. The Windows NT-equipped XPS T550 set a new PC WorldBench 98 speed record when it was first tested, and it is still the fastest PIII-550 PC we've seen. But performance isn't this PC's only strong suit. Among its truckload of features, the Dell includes a

22.6GB hard drive, an Iomega Zip 250 drive, and a 2X CD-Rewritable drive. Combine these assets with Dell's top honors in *PC World's* most recent Reliability and Service survey and you've got a powerful system that you can depend on.

WHAT'S NOT: Dell keeps costs down by skipping the sound card. Paired with the integrated Yamaha XG 64Voice sound chip are entry-level (read: mediocre quality) speakers from Harmon/Kardon.

WHAT ELSE: Good documentation makes for a quick and easy setup, and can help you solve problems that will keep the PC up and running. Dell's manuals come in a special box that holds the Windows license in a pocket, so you don't need to hunt for the easy-to-lose registration number (which you have to enter to get a Windows PC started). The sleek new case design is attractive, but some drive bay covers on our unit came loose in transit.

BEST USE: The XPS T550 would be right at home in any office, but the CD-RW drive makes it particularly useful for folks who need to make custom CDs.

2 DELL OPTIPLEX GX1P 500

WHAT'S HOT: The GX1p 500's PC WorldBench 98 score of 284 is above average for PIII-500 systems running Windows NT. The system comes well equipped for corporate use: It has an easy-open case (with security fea-

Extra features	Design and expandability	Vendor's system reliability	Tech support quality/policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)	Product info number ¹
Good: Diamond Viper TNT 3D graphics with 16MB of SDRAM, 17-inch monitor, 2X CD-RW, Iomega Zip drive, V.90 modem	Good: 3 open drive bays, 4 open slots	Outstanding	Good/Good	24/7, toll-free	3/1	-
Good: STB NVidia TNT (PCI) graphics with 16MB of SDRAM, 17-inch monitor, 17X-40X CD-ROM, Iomega Zip drive, network card	Good: 2 open drive bays, 6 open slots	Outstanding	Good/Outstanding	24/7, toll-free	3/3	-
Very good: Diamond Viper V770 graphics with 16MB of SDRAM, 19-inch monitor, 6X DVD-ROM, Iomega Zip drive, V.90 modem	Good: 3 open drive bays, 3 open slots	Good	Fair/Outstanding	24/7, toll-free	Varies */3	635
Very good: OEM RIVA TNT2 graphics with 16MB of SDRAM, 19-inch monitor, 14X-32X CD-ROM, Iomega Zip drive, network card	Satisfactory: 4 open drive bays, 4 open slots	Good	Good/Outstanding	24/7, toll-free	3/3	636
Good: ATI Rage 128GL graphics with 16MB of SDRAM, 19-inch monitor, 13X-32X CD-ROM, network card	Satisfactory: 5 open drive bays, 2 open slots	Good	Good/Outstanding	24/7, toll-free	3/3	637
Satisfactory: Diamond Viper V550 graphics with 16MB of SDRAM, 17-inch monitor, 14X-32X CD-ROM, V.90 modem	Good: 2 open drive bays, 3 open slots	Good	Good */Outstanding	24/7, toll-free	3/3	638
Good: Diamond Viper V770 graphics with 32MB of SDRAM, 19-inch monitor, 12X-52X CD-ROM, Iomega Zip drive, V.90 modem	Satisfactory: 1 open drive bay, 3 open slots	Fair	Fair/Good	24/7, toll-free	3/1	639
Good: Diamond Viper V770 graphics with 16MB of SDRAM, 19-inch monitor, 6X DVD-ROM, V.90 modem	Good: 4 open drive bays, 3 open slots	Good	Fair/Outstanding	24/7, toll-free	Varies */3	640
Good: Matrox Millennium G200 graphics with 8MB of SDRAM, 17-inch monitor, 13X-32X CD-ROM, network card	Satisfactory: 3 open drive bays, 5 open slots	Fair	Good/Fair	12/5, toll-free	3/1	641
Outstanding: STB Velocity 4400 graphics with 16MB of SDRAM, 19-inch monitor, 17X-40X CD-ROM, Iomega Zip drive, network card	Satisfactory: 2 open drive bays, 5 open slots	Good	Good/Fair	24/7, toll-free	Varies */1	-
Extra features 10 percent	Design and expandability 15 percent	Reliability 15 percent	Support and warranty 15 percent			

¹ For more information about all of the products listed in this table, select number 904 on the product information card or visit www.pcworld.com/productinfo.

² Five years on CPU and main RAM, three years on other parts.

³ Due to insufficient data from the Reliability and Service survey for the vendor's work PCs, this rating is derived from anonymous support-quality calls, from survey scores for the vendor's home PCs, or from both.

tures like a padlock loop and an open-case alert switch), six open slots, two open drive bays, and a network card. Dell maintains 24-hour technical support, and its service, though not perfect, ranks among the best in the industry. Participants in our most recent survey gave the company Outstanding marks for reliability.

WHAT'S NOT: The 17-inch Dell 1028L monitor isn't the best we've seen. The display we evaluated suffered from dark images and slightly fuzzy text. And though the case is easy to open (thanks to a small button that releases a latch inside the case), nudging it back closed so that the latch engages properly can be rather difficult.

WHAT ELSE: This OptiPlex offers plenty of storage, with a 20GB hard drive and an Iomega Zip drive. Color-coded ports and



COOL COMPUTING: Special green ducting directs air over the Pentium III processor inside the OptiPlex GX1p 500. Keeping things cool can prevent some kinds of system crashes and lengthen a CPU's useful life span.

detailed manuals make setup painless. The system uses PCI graphics rather than the more cutting-edge AGP.

BEST USE: Busy IS staffers will appreciate this easy-to-maintain corporate PC.

3 MICRON MILLENNIA MAX 500

WHAT'S HOT: The top performer in its processor class with Windows 98, the Millennia Max 500 features an abundance of expansion room. The great-sounding Monsoon MM-1000 speaker set includes four satellites and a giant subwoofer. **WHAT'S NOT:** In our latest Reliability and Service survey, our readers rated Micron's telephone support quality as only Fair, which keeps the Millennia Max 500 out of Best Buy range this month.

WHAT ELSE: Micron includes a 6X DVD-ROM drive—the fastest available—and an Iomega Zip drive with the system. You also get a top-quality graphics board and a bundled V.90 modem for easy connection to the Internet.

BEST USE: As a multipurpose home-office system, the Millennia Max 500 will keep most people working hard dur-

ing the day while providing the multimedia to keep them entertained at night.

4 GATEWAY GP7 500

NEW WHAT'S HOT: This Windows NT-based system raced to a score of 290 on our PC WorldBench 98 tests—close to the highest score we've recorded. The large case offers plenty of easy-to-reach expansion room, and the 19-inch VX 900 monitor provides crisp text and graphics from the RIVA TNT2 graphics board at resolutions up to 1600 by 1200. Among other niceties, Gateway includes an Iomega Zip drive and Microsoft Office 97 Small Business Edition software.

WHAT'S NOT: The tool-less entry case, though easy to remove, proved difficult to replace snugly. Inside you'll see four expansion slots, but instead of filling one of these with a good sound card, Gateway uses an integrated audio chip. Nevertheless, the chip produces adequate sound

quality when pumped through the sleek Cambridge SoundWorks GCS 200 speakers.

WHAT ELSE: The network-ready GP7 includes an ethernet card. While the unit we tested runs Windows NT Workstation 4.0, you can also buy it with Windows 98 installed.

BEST USE: A solid performer, the GP7 would make a great addition to any small to medium-size business.

5 GATEWAY E-4200 500

WHAT'S HOT: The corporate-oriented E-4200 500 offers high-end performance and it comes bundled with an ethernet card. The system's ATI Rage 128GL graphics card helps the 19-inch Gateway monitor display images vividly, and the Altec Lansing GCS100 speakers and subwoofer offer rich sound.

WHAT'S NOT: All of these positives don't come cheap. At \$2405, the E-4200 sells



NETWORKED NEWCOMER: Gateway's GP7 500 comes equipped with Windows NT Workstation 4.0.

for more than you'd pay for the same components in a noncorporate system.

WHAT ELSE: The PC's midsize tower case offers a lot of expansion room. A less-costly CD-ROM drive stands in for the DVD drive you might expect at this price point. Gateway supplies excellent documentation, and the company's record for reliability and service in support of its work PCs remains strong.

BEST USE: A good choice for offices seeking a power-packed, multimedia-equipped business workstation.

6 NEC POWERMATE VT 300

WHAT'S HOT: With a PC WorldBench 98 score of 231 and a \$2113 sticker price, the PowerMate VT 300 provides very good performance at a price that's almost \$700 below that of the eighth-place Micron Millennia 550. The minitower case features a front-mounted USB port, and the 17-inch NEC Vista Scan 7000 monitor offers USB controls and a USB port on its base. The monitor produces clear text and graphics at resolutions up to 1280 by 1024.

WHAT'S NOT: Unfortunately, the monitor's USB connector occupies one of the system's USB ports; thus while you gain the convenience of having one of the ports within easy reach on the display, you don't increase the total number of USB ports available. The interior is also cramped.

WHAT ELSE: NEC includes a V.90 PCI modem with this system. Highlighting the excellent documentation are an in-depth troubleshooting section and a multitude of illustrations and diagrams. ▶

Tech Trends: Processor Churn Creates Bargains

THE LIFE SPAN OF A PROCESSOR—the length of time from the chip's introduction until it becomes completely obsolete—used to be about three years, says George Alfs, a spokesperson for Intel. "Now it's getting close to two years and sometimes [it's] less," he says.

Some large companies—especially those that standardize on a single processor for all the PCs used in their business—can get caught in the vortex of what analysts call processor churn: the ever-accelerating spiral into CPU obsolescence, created by chip innovations.

But these whirlpools that drag CPUs into oblivion also create attractive eddies of price reductions. Consumers can then save a bundle by buying a system with a slightly outdated processor. Budget PCs, like EMachines' 400i, help extend longevity as manufacturers incorporate low-end Pentium IIs and members of the Celeron family into their low-cost lines. But even the higher-end PII's days are numbered as more systems use Pentium IIIs.

First introduced in the spring of 1997, the Pentium II remained at the top for almost two years. But by the end of this year, most manufacturers will ship their flagship systems with Pentium III processors. "Vendors that move on to new technology [quickly] have pretty much already adopted the Pentium III," Alfs says. Our power PCs chart reflects this migration trend.

Still, Alfs predicts that we'll be well into 2000 before PIIs become as hard to find as first-generation Pentiums are today. In the meantime, consumers can surf the waves of price reductions to get great deals. If sales of PIIs are strong, PC makers will continue to buy the cheaper chips. And notebook CPUs always lag a few speed-steps behind desktop processors, so the PII will have a mobile home—and consumers will have more opportunities for bargains—for at least another year.





**MY DAD IS A
VICTIM OF BAD
GRAPHICS.**



NVIDIA™

Relax. Now it's easy to let the power of graphics take you to new levels for everything from e-business to business proposals and more. We're NVIDIA. And creating superior graphics processors is all we do. So it's no surprise that we offer the industry's most comprehensive range of high-quality graphics solutions. If you demand graphics that enable you to do business faster and better, then demand the chip that boasts over 300 awards from prestigious sources such as PC Magazine, PCWorld, and CNET. Graphics to the nth degree.

NVIDIA and the NVIDIA logo are trademarks of NVIDIA Corp. © NVIDIA Corporation 1999.
Circle 216 on card or go to www.pcworld.com/productinfo



graphics[™]

BEST USE: The PowerMate makes an excellent office system for performance-hungry, multimedia-savvy users.

7 COMPAQ PROSIGNIA DESKTOP 330

WHAT'S HOT: A score of 246 on our PC WorldBench 98 tests makes this the second-fastest Windows 98 PC we've tested. The system includes great multimedia extras: an Iomega Zip drive, a Diamond Viper V770 graphics board, and a Sound Blaster Live card. The 19-inch Compaq S900 monitor offers impressive image quality: Text and images remain crisp even up to 1600 by 1200 resolution.

WHAT'S NOT: Some front bezel pieces—the floppy drive faceplate and eject button in particular—were loose on the unit we received for testing. The system comes with limited expandability: You'll find only one ISA, one PCI, and one combination slot inside.

WHAT ELSE: The ProSignia ships with Microsoft Office 97 Small Business Edition and Norton AntiVirus Deluxe software and a vast 22GB hard drive that will hold them—and just about anything else you want to install. The system's solidly constructed keyboard is a pleasure to use.

BEST USE: Compaq's ProSignia line hits the target for the small business user who won't settle for inferior, integrated multimedia components.

8 MICRON MILLENNIA 550

NEW WHAT'S HOT: The Millennia 550's monstrously large case resembles an Imperial battle ship from *Star Wars* more

than a desktop PC, but it's designed to standards that would make the Empire proud. The system's 248 score on PC WorldBench 98 makes it the fastest Win 98-based PIII-550 we've seen; it also turns in excellent multimedia performance.

WHAT'S NOT: At \$2799, the Millennia 550 exacts a steep price for quality. For instance, the 6X DVD-ROM drive lacks a tray. As a result, you have to insert the disc right into a slot, making fingerprint smudging much more likely.

WHAT ELSE: To open the case, all you have to do is release a sliding rear latch. A plastic mount for extra internal fans easily swings clear of the large, uncluttered interior. Micron also includes a V.90 modem.

BEST USE: Fine all-around performance and special strength in multimedia work make the Millennia 550 a good mixed-use home-office system.

9 HP VECTRA VL18 MT PIII-550

WHAT'S HOT: The strictly business Vectra VL18 MT PIII-550 ships with many of the essentials you'll need in a networked, corporate environment. This strong performer features a case that opens via a latching hinge (à la Apple's Power Macintosh G3). You also won't need a short screwdriver or the fine motor skills of a jeweler to insert expansion cards: The computer's upside-down PCI slots reside on a one-piece "locker" that slides right out of the case.

WHAT'S NOT: Our readers rate the reliability of HP's desktop PCs as merely Fair in our latest survey.

WHAT ELSE: The integrated audio and video chips included with the PC suffice for straight business applications and keep the minimal interior space free of expansion cards. Special buttons on the keyboard allow you to launch applications or adjust the sound volume.

BEST USE: Hewlett-Packard's business-oriented system works well in networked environments



BIG AS A HORSE
and loaded with horsepower,
Micron's Millennia 550
includes a trayless DVD-
ROM drive, pictured at right.

where the ability to repair and upgrade a legion of machines quickly is crucial to IS departments.

10 IBM PC 300PL

WHAT'S HOT: A 20.4GB hard drive and Iomega Zip drive give the PC 300PL a huge amount of storage space. The system's PC WorldBench score of 232 comes within 5 points of the fastest Windows 98-based PIII-500 PC we've tested.

WHAT'S NOT: At \$2559, the PC 300PL is the costliest PIII-500 system on the chart; other vendors sell comparable systems for hundreds of dollars less.

WHAT ELSE: The PC 300PL includes a built-in ethernet connection. We had varying degrees of success reaching reps during anonymous tech support calls; when we got through, techs were knowledgeable but sometimes impatient.

BEST USE: IBM's corporate appearance and brand name make the PC 300PL suitable as a presentation PC or multimedia development system for business users in a networked environment. ▶



BARGAIN POWER: NEC's PIII-500 version of the PowerMate VT 300 is the least expensive power PC here.

ALSO NEW THIS MONTH



WE EVALUATED the following systems along with the others, but they didn't score high enough to reach the *Top 10 Power PCs* chart. For write-ups, visit PC World Online (www.pcworld.com/t10pcs).

- ◆ CompUSA American Pro 500
- ◆ NEC PowerMate VT 300 (PIII-550)
- ◆ Toshiba Equium 7100D PIII 550

1. Start image editing software
2. Choose "file acquire"
3. Pre-scan page
4. Set scan area
5. Set resolution
6. Set scan mode
7. Scan page
8. Close TWAIN
9. Save file
10. Close image editing application
11. Start e-mail package
12. Start new message
13. Choose "attach file"
14. Locate saved file on hard disk

How to scan and e-mail
a photo from their scanner.

How to do it
from ours.

One small step for scanners. 13 fewer steps for you.

Let's face it, most scanners are not as simple
as they are supposed to be.

Drag and drop, plug and play,
billions of colors, and all the other
terms and specs don't make a bit of
difference when all you want to do is
e-mail a photo, scan a page of text into
your word-processor or any of the other
tasks you do countless times a day.



Visioneer OneTouch offers a simpler, more elegant
solution. It does most of the work for you, thanks to its
tight integration with the PaperPort software.

Drop in your original. Push a button. It's that easy.
Hold down a button, change a few settings, and your
scanner is practically a whole new machine.

Sure, we have all the specs
and features you expect in a
quality scanner, but we think
you'll be much more impressed
with those five friendly buttons
up front.

Visioneer OneTouch.
All scanners should be this simple.



- Available in USB and Printer Port models • Printer Port models feature pass-through design • Lift-off lid
- Includes PaperPort software • Windows 95/98/NT 4.0 compatible
















Visioneer OneTouch 5300 Scanner

Visit our website at pcw.visioneer.com

© 1999 Visioneer, Inc.

Circle 255 on card or go to www.pcworld.com/productinfo

TOP 10 MIDRANGE PCs

	SYSTEM (\$1200 TO \$1999)	Month tested	★ Overall rating	Street price (as of 7/23/99)	PC WorldBench 98 performance score ¹	Base configuration ²
1	 Dell Dimension XPS T450 800/388-8542 www.dell.com	June 99	89	Inexpensive: \$1439	 218	Good: Pentium III-450, 64MB of RAM, 512KB L2 cache, 13.6GB hard drive, midsize tower case, Windows 98
2	 Gateway GP6-466c 800/315-2536 www.gateway.com	(NEW)	85	Inexpensive: \$1329	 207	Good: Celeron-466, 64MB of RAM, 128KB L2 cache, 22GB hard drive, midsize tower case, Windows 98
3	Dell Dimension L466c 800/388-8542 www.dell.com	(NEW)	84	Very inexpensive: \$1259	 200	Satisfactory: Celeron-466, 64MB of RAM, 128KB L2 cache, 9GB hard drive, minitower case, Windows 98
4	Gateway E-3200 450 800/315-2536 www.gateway.com	Sept 99	84	Average: \$1599	 211	Very good: Pentium III-450, 128MB of RAM, 512KB L2 cache, 16.8GB hard drive, compact case, Windows 98
5	Micro Express MicroFlex-5B 800/989-9900 www.microexpress.net	Sept 99	84	Inexpensive: \$1499	 234	Very good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 18GB hard drive, midsize tower case, Windows 98
6	Micron Millennia Max 450 800/642-7667 www.micronpc.com	Apr 99	82	Average: \$1847	 219	Very good: Pentium III-450, 128MB of RAM, 512KB L2 cache, 14.4GB hard drive, midsize tower case, Windows 98
7	CyberMax Enthusiast 500 800/437-4596 www.cybermaxpc.com	May 99	81	Inexpensive: \$1499	 236	Good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 13.6GB hard drive, midsize tower case, Windows 98
8	Axis Systems Orion 100C DVD 800/378-9014 www.axisys.com	(NEW)	81	Inexpensive: \$1378	 210	Good: Pentium III-450, 128MB of RAM, 512KB L2 cache, 10.2GB hard drive, minitower case, Windows 98
9	MidWest Micro Office Pro XPO 450 800/726-8582 www.mwmicro.com	Aug 99	80	Very inexpensive: \$1299	 211	Good: Pentium III-450, 64MB of RAM, 512KB L2 cache, 10.1GB hard drive, midsize tower case, Windows 98
10	Quantex M500 800/896-4898 www.quantex.com	Sept 99	80	Average: \$1699	 230	Good: Pentium III-500, 128MB of RAM, 512KB L2 cache, 13GB hard drive, midsize tower case, Windows 98
 Best Buy		Percent of overall rating ▶		Price 17 percent	Performance 18 percent	Base configuration 10 percent

¹ A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 221.


² We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compact (shorter than 5 inches).

³ For more information about the products listed in this table, select number 903 on the product information card or visit www.pcworld.com/productinfo.



MIDRANGE SYSTEMS offer a balance of price and performance. They cost between \$1200 and \$1999 and won't empty your bank account, but they probably won't set any speed records either. Midrange systems include low-end, Celeron-based PCs like the Gateway GPC-466c, as well as speedy Pentium III PCs like Dell's Dimension XPS T450 that come with premium features.

1 DELL DIMENSION XPS T450

 **WHAT'S HOT:** For a Pentium III-450 system, the \$1439 XPS T450 packs a significant wallop at a decent price. Dell includes such top-end components as a 16MB Diamond Viper V550 graphics board and a Yamaha audio board. And in case you want to add more equipment, rest assured: The tidy interior provides plenty of space for all manner of devices, thanks to four free expansion slots and four free drive bays. If setup is a concern, the T450's color-coded cables make connecting peripherals easy.



WHAT'S NOT: Images on the 17-inch Dell M780 monitor appear a tad fuzzy. Belying its name, the Dell QuietKey keyboard that accompanied our test system clacked loudly when we typed.

WHAT ELSE: The bundled Harman/Kardon HK195 speakers yield decent audio, though we've heard fuller and richer sound from a number of Altec Lansing models. The XPS T450's software bundle includes Microsoft Office Small Business Edition and Microsoft Streets Plus. Well-written manuals include many helpful illustrations, and if you need more assis-

tance, Dell's technical help line offers good support. One nice interior touch: A ventilation hood over the CPU shunts excess heat from the processor directly out the PC's back panel.

BEST USE: The Dimension XPS T450 will thrive in small businesses, especially those without an IS staff (for such companies, service and support are critical).

2 GATEWAY GP6-466C

 **WHAT'S HOT:** The GP6-466c ships with lots of corporate accoutrements but sells for just \$1329— a remarkably low price for a business-oriented system. Gateway includes hardware goodies such as an Iomega Zip drive and a network card, too. The above-average software bundle consists of Microsoft Office 97 Small Business Edition as well as several utilities. The GP6-466c's PC WorldBench 98 score of 207 puts the system in the middle of the pack

Extra features	Design and expandability	Vendor's system reliability	Tech support quality/policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)	Product info number ¹
Satisfactory: Diamond Viper V550 graphics with 16MB of SDRAM, 17-inch monitor, 17X-40X CD-ROM, V90 modem	Good: 4 open drive bays, 4 open slots	Outstanding	Good/Good	24/7, toll-free	3/1	-
Very good: integrated ATI Rage 128VR graphics with 8MB of SDRAM, 17-inch monitor, 4X DVD-ROM, Iomega Zip drive, network card	Good: 4 open drive bays, 2 open slots	Good	Good/Outstanding	24/7, toll-free	3/3	627
Satisfactory: integrated Intel 810 graphics with 4MB of SDRAM, 15-inch monitor, 12X-32X CD-ROM, V90 modem, network card	Good: 1 open drive bay, no open slots	Outstanding	Good/Good	24/7, toll-free	3/1	-
Good: integrated ATI Rage Pro graphics with 4MB of SGRAM, 17-inch monitor, 13X-32X CD-ROM, network card	Good: no open drive bays, 6 open slots	Good	Good/Outstanding	24/7, toll-free	3/3	628
Good: ATI Rage 128GL graphics with 16MB of SDRAM, 17-inch monitor, 4X DVD-ROM, V90 modem	Satisfactory: 4 open drive bays, 4 open slots	*	Fair */ Outstanding	24/7, toll-free	4/4	629
Very good: Diamond Viper V550 graphics with 16MB of SDRAM, 17-inch monitor, 6X DVD-ROM, V90 modem	Satisfactory: 3 open drive bays, 3 open slots	Good	Fair/Outstanding	24/7, toll-free	Varies */3	630
Good: STB Velocity 4400 graphics with 16MB of SDRAM, 19-inch monitor, 6X DVD-ROM, V90 modem	Good: 6 open drive bays, 4 open slots	*	Fair */ Good	24/7, toll-free	3/1	631
Good: integrated Intel 740 graphics with 8MB of SGRAM, 17-inch monitor, 6X DVD-ROM, V90 modem	Satisfactory: 4 open drive bays, 4 open slots	*	Good */ Outstanding	24/7, toll-free	3/3	632
Good: ATI Xpert 128 AGP graphics with 16MB of SDRAM, 17-inch monitor, 6X DVD-ROM, V90 modem	Satisfactory: 4 open drive bays, 4 open slots	*	Fair */ Outstanding	24/7, toll-free	Varies */3	633
Very good: STB Velocity 4400 graphics with 16MB of SDRAM, 19-inch monitor, 6X DVD-ROM, V90 modem	Satisfactory: 5 open drive bays, 5 open slots	Good *	Fair */ Good	24/7, toll-free	3/1	634
Extra features 10 percent		Design and expandability 15 percent	Reliability 15 percent	Support and warranty 15 percent		

* Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs.

* Due to insufficient data from the Reliability and Service survey for the vendor's work PCs, this rating is derived from anonymous support-quality calls, from survey scores for the vendor's home PCs, or from both.

* Five years on CPU and main RAM, three years on other parts.

of Celeron-466 systems we've tested, but it performed slightly better than Dell's third-place Dimension L466c, the only other similarly equipped PC to make the midrange chart this month.

WHAT'S NOT: Despite the system's monstrously large case, we found limited room for expansion. The motherboard Gateway uses here is far too small for the case in which it resides. As a result, the motherboard doesn't extend to the bottom of the case, and the lowest three expansion slot openings don't lead to any slots.

WHAT ELSE: Gateway's excellent documentation and setup guides offer solid troubleshooting info and many useful diagrams. Gateway also bundles a good 17-inch EV700 monitor that features on-screen controls, and rich-sounding Cambridge SoundWorks SBS52 speakers.

BEST USE: The GP6-466c gives small to medium-size businesses a low-cost networkable alternative to high-end PCs.

3 DELL DIMENSION L466C

NEW WHAT'S HOT: At \$1259, this new Celeron-equipped Dimension L466c enters the chart as the lowest-priced midrange system. We found the case that

Dell designed for this machine one of the easiest to open among the many easy-open cases we've seen. Dell's extremely thorough documentation includes a large reference and troubleshooting manu- ▶

NEW CATEGORY MIDRANGE PCs

What's a "midrange PC"? We define a midrange PC as a computer costing between \$1200 and \$1999, whose price includes a monitor.

Your old chart covered some of these PCs. Why make a new chart? Until this month, we featured 20 budget desktops and 20 power desktops. As a result of your feedback and our own research, we've introduced the midrange category so we can cover the systems at the far ends of the price and performance spectrum without neglecting middle-of-the-road computers—those that are neither ultracheap nor superpowerful. PCs on the midrange chart offer an appealing balance of price and performance.

What's different about the new charts? Our revised *Top 10 Budget PCs* chart now covers truly budget systems—those priced below \$1200. These PCs, which make up the fastest-growing segment of the computer market, don't have the muscle or the luxuries to compete with the more expensive systems that appeared on our old *Top 20 Budget Desktops* chart. The new *Top 10 Midrange PCs* includes feature-rich systems that cost too much to be considered budget machines. The *Top 10 Power PCs* section provides buying advice on the fastest, most cutting-edge computers available—those costing more than \$2000.



BIG LITTLE SYSTEM: Gateway's inexpensive GP6-466c sports a larger-than-average case.

al, as well as quick-start and setup guides. **WHAT'S NOT:** With a score of 200 on our PC WorldBench tests, the Dimension L466c runs slightly slower than similarly equipped Celeron-466 PCs. Because the system ships with an integrated Intel 810 AGP graphics chip (with 4MB of video memory), no AGP slot is available to accept a new card. You could, however, add a PCI board. The tiny Dell 828FI 15-inch monitor performed poorly, displaying fuzzy text at 1024 by 768 resolution. Replacing it with Dell's 17-inch M780 would raise the system's price to a still-affordable \$1349.

WHAT ELSE: The computer comes with a 12X-32X CD-ROM drive, a 9GB hard drive, and a controllerless V.90 modem in addition to an integrated ethernet card. PC World readers categorize Dell's systems as among the most reliable computers available.

BEST USE: With its integrated networking capabilities and business-oriented software, this Dell is well suited to networked offices that don't require a high-performance workstation.

4 GATEWAY E-3200 450

WHAT'S HOT: This compact corporate system is the third-costliest PC on the mid-range chart, but the \$1599 buys you an integrated ethernet card, a large hard drive, and 128MB of memory in a space-saving design that takes up about as much space on a desk as a monitor stand.

WHAT'S NOT: A low-end graphics card makes for fuzzy text at 1024 by 768 reso-

lution on the 17-inch Gateway EV700 monitor that accompanied our test system. You may want to upgrade the graphics board eventually, but make sure you buy a PCI model: The E-3200 450 doesn't have an AGP graphics slot. If the 17-inch display seems small for you, Gateway sells a 19-inch EV910 monitor for \$130 more.

WHAT ELSE: The case opens with the twist of a single thumbscrew, revealing a tightly packed but easy-to-service interior. Buttons or latches allow easy access to any component or any part of the motherboard

in minutes, without any tools. Manuals bundled with our test system referred to Windows 95, though the unit we looked at came with Windows 98.

BEST USE: The E-3200 450 is a good match for businesses in need of space-saving systems that can be serviced quickly.

5 MICRO EXPRESS MICROFLEX-5B

WHAT'S HOT: With a score of 234 on our PC WorldBench 98 tests, this \$1499 MicroFlex performs as well as a Top 10 power system. The excellent 17-inch Impression 7VX monitor's text and images remain crisp all the way up to the maximum 1600 by 1200 resolution. Software-decoded DVD video plays smoothly, even while other applications crank away in the background. The Altec Lansing ACS44 speaker and subwoofer combo produce good sound.

WHAT'S NOT: Though the corrugated side panel may have been intended to make the system easier to open, it actually has the opposite effect. Poorly labeled connectors on the rear of the machine may frustrate new owners during setup. The system also ships without a printed manual, though it does include a quick installation guide and adequate documentation for the DVD-ROM player and the monitor.

WHAT ELSE: The large interior provides an ample amount of expandability, including four open drive bays, four open card

slots, and three open memory sockets.

BEST USE: Offices that make heavy use of multimedia for presentations, video-conferencing, or training will appreciate the system's great sound and video.

6 MICRON MILLENNIA MAX 450

WHAT'S HOT: An appealing departure from the Beige Box Syndrome, the stylish, light gray Millennia Max 450 offers souped-up video with a Diamond Viper V550 graphics card and a crisp 17-inch Micron 700VX monitor. It also includes a 6X DVD-ROM drive—the fastest model currently available—a nice extra that's unusual at this price point.

WHAT'S NOT: When playing DVD movies, the screen appeared too dark, even after we boosted the brightness setting to



GET STARTED FAST: Does hunting for the Windows registration number slow you down? Dell's new documentation box, shown with the Dimension L466c, helps you cut to the chase.

the highest possible level. The integrated Crystal sound chip generates adequate audio for system beeps and boops, but lacks the 3D audio features of most high-end audio cards. Sound from the Advent AV009 speakers was so muffled that we thought we were in a Midas shop.

WHAT ELSE: You don't get as many free slots in this system as in most midrange PCs, but you also have fewer reasons to upgrade right away. In our most recent Reliability and Service survey, subscribers rated Micron's support quality as Fair.

BEST USE: This all-purpose system will work well in any small or home office, but serious audiophiles should consider upgrading to a PCI sound card.

7 CYBERMAX ENTHUSIAST 500

WHAT'S HOT: The Enthusiast performed faster than any other midrange system, scoring 18 points higher on PC WorldBench 98 tests than our number one midrange system, Dell's Dimension XPS T450. Even better, the Enthusiast 500 sells for just \$60 more than the Dell. Though lacking a dedicated MPEG decoder board, this powerful system renders DVD movies smoothly and vibrantly—even with several applications running simultaneously in the background. The Altec Lansing ADA305 Digital PowerCube speakers and subwoofer lend lifelike sound effects to games and DVD movies.

WHAT'S NOT: We waited—and waited—up to 55 minutes for tech support, and had to call three times before reaching a live technician. When we finally got through, the courteous staffers tended to miss our tougher questions.

WHAT ELSE: The Enthusiast includes a large bundle of office and reference software, including Corel's WordPerfect Suite 8, Compton's World Atlas, and Compton's Encyclopedia. Its case cover is a bit tricky to remove and replace.

BEST USE: It's a great choice for budget-oriented home offices that have a penchant for multimedia applications.

8 AXIS SYSTEMS ORION 100C DVD

NEW WHAT'S HOT: Though the Orion comes without an MPEG decoder card, its DVD-ROM player works well, automati-

cally changing the monitor's resolution to the best setting for video or computer signal. Excellent documentation consists of detailed diagrams and a thorough troubleshooting section.

WHAT'S NOT: With a score of 210 on our PC WorldBench tests, this system is considerably slower than many comparable PIII-450 systems. Manipulating the case cover requires serious manual dexterity and the removal of four screws.

WHAT ELSE: At \$1378, the Orion might draw budget-conscious buyers searching for an expandable multimedia PC. But you'll need to shell out some more cash for audio—the system doesn't include speakers at this price.

BEST USE: The Orion 100C DVD makes a solid presentation system, thanks to its decent 17-inch monitor (the ADI CM700) and a 6X DVD-ROM drive.

9 MIDWEST MICRO OFFICE PRO XPO 450

WHAT'S HOT: With a price of \$1299, this Office Pro XPO 450 undercuts not only the other Pentium III-450s on our *Top 10 Midrange PCs* chart, but also one Celeron-466 system. Another pleasant surprise at this price point: The XPO 450 ships with a 6X DVD-ROM drive, albeit one with a software decoder. Four open expansion slots and four free drive bays offer users plenty of upgradability.

WHAT'S NOT: Its score of 211 on our PC WorldBench 98 tests shows that the XPO 450 is slower than most comparable systems. Despite tool-less entry, removing and replacing the case requires some work.

WHAT ELSE: The small but powerful Altec Lansing ACS44W speakers tend to move around a bit on the desk, but they produce good sound and abundant volume. Color-coded exterior ports ease the connection of peripherals. Midwest Micro bundles Microsoft Office 97



PRESENTATION PRO: Axis Systems' Orion 100C DVD offers good display quality.

Small Business Edition with the system.

BEST USE: It's a stellar choice for small businesses with budget constraints.

10 QUANTEX M500

WHAT'S HOT: You'd be hard-pressed to find a better-appointed multimedia powerhouse. The 6X DVD-ROM drive, Aureal Vortex2 sound card, and STB Velocity 4400 graphics board make the M500 a top-notch authoring station. And after work it's a great movie-watching machine, thanks to the 19-inch DiamondTron flat CRT monitor that comes with it.

WHAT'S NOT: Quantex (like two other large PC companies on the chart) offers a warranty that covers labor for just one year. Paired with a rating of Fair for support quality, this limitation kept the system from reaching higher in the chart.

WHAT ELSE: The M500's cost is about average for similarly configured computers, but it's pricey for a midrange PC.

BEST USE: The M500 makes a blazingly fast presentation system or a choice executive workstation for the Big Cheese. ►



AUDIO EXTRAORDINAIRE: An Altec Lansing ADA305 speaker set, which includes a subwoofer and a pair of angled satellite speakers, accompanies the CyberMax Enthusiast 500.

ALSO NEW THIS MONTH



WE EVALUATED the following systems along with the others, but they didn't score high enough to make the *Top 10 Midrange PCs* chart. For write-ups, visit PC World Online (www.pcworld.com/t10pcs).

- ◆ ABS Ultimate Workstation
- ◆ Compaq ProSignia Desktop 320
- ◆ Kingdom Pinnacle 500
- ◆ Micron Millennia 466
- ◆ Sys Performance 450 K3

TOP 10 BUDGET PCs

	SYSTEM (UNDER \$1200)	Month tested	★ Overall rating	Street price (as of 7/23/99)	PC WorldBench 98 performance score ¹	Base configuration ²
1	 Micro Express MicroFlex-50C 800/989-9900 www.microexpress.net	Aug 99	79	Expensive: \$1199	Outstanding 222	Good: Pentium III-450, 64MB of RAM, 512KB L2 cache, 18GB hard drive, midsize tower case, Windows 98
2	 Micro Express MicroFlex-34D 800/989-9900 www.microexpress.net	July 99	78	Expensive: \$1199	Outstanding 217	Very good: AMD K6-III-400, 128MB of RAM, 256KB L2 cache, 18GB hard drive, midsize tower case, Windows 98
3	MidWest Micro Office Pro XPO-400 800/728-8582 www.mwmicro.com	Aug 99	76	Average: \$1069	Good 199	Good: Pentium II-400, 64MB of RAM, 512KB L2 cache, 10.2GB hard drive, midsize tower case, Windows 98
4	MidWest Micro Office MWO-400C 800/728-8582 www.mwmicro.com	July 99	74	Average: \$979	Good 192	Satisfactory: Celeron-400, 64MB of RAM, 128KB L2 cache, 6.4GB hard drive, midsize tower case, Windows 98
5	Quantex M466-2c 800/896-4898 www.quantex.com	Sept 99	73	Expensive: \$1199	Very good 209	Good: Celeron-466, 64MB of RAM, 128KB L2 cache, 13GB hard drive, midsize tower case, Windows 98
6	Axis Systems Orion LXN 800/378-9014 www.axisys.com	July 99	73	Average: \$999	Good 193	Satisfactory: Celeron-400, 64MB of RAM, 128KB L2 cache, 6.4GB hard drive, midsize tower case, Windows 98
7	Kingdom Pinnacle 400s 800/385-3436 www.kingdomcomputers.com	July 99	72	Average: \$947	Satisfactory 172	Satisfactory: Celeron-400, 64MB of RAM, 128KB L2 cache, 10.2GB hard drive, minitower case, Windows 98
8	HP Brio BA C433 800/752-0900 www.hp.com/desktops	July 99	72	Average: \$999	Good 192	Satisfactory: Celeron-433, 64MB of RAM, 128KB L2 cache, 4.3GB hard drive, minitower case, Windows 98
9	Acma A333 800/786-6888 www.acma.com	July 99	72	Inexpensive: \$798	Satisfactory 172	Satisfactory: Celeron-333, 64MB of RAM, 128KB L2 cache, 4.3GB hard drive, minitower case, Windows 98
10	Xi Computer 333A MTower 800/432-0486 www.xicomputer.com	Mar 99	71	Average: \$1099	Good 182	Good: Celeron-333, 64MB of RAM, 128KB L2 cache, 14GB hard drive, midsize tower case, Windows 98
 Best Buy		Percent of overall rating ▶		Price 22 percent	Performance 13 percent	Base configuration 10 percent

¹ A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 221.

² We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compact (shorter than 5 inches).


³ For more information about all the products in this table, select number 902 on the product information card or visit www.pcworld.com/productinfo.



ENCOMPASSING THE BEST PCs under \$1200, our new *Top 10 Budget PCs* should be your first stop if you're looking for a low-cost computer. Three systems on the list

earned PC WorldBench 98 scores of over 200—respectably fast for running business applications. And any of the Top 10 PCs would make a nice upgrade, especially if you're still using a four-year-old Pentium-60.

1 MICRO EXPRESS MICROFLEX-50C

 **WHAT'S HOT:** Just barely sliding in at our budget chart's \$1199 price cap, the MicroFlex-50C scored well enough on our PC WorldBench 98 tests to beat more than half the systems on the midrange chart. Pair that performance with a good 17-inch monitor and great Altec Lansing ACS44 speakers, and the MicroFlex-50C comes ready to rock. The system offers plenty of space for expansion and a very rugged, tool-free case that's easy to slide open. Micro Ex-


press covers parts and labor for four years.

WHAT'S NOT: Most of the internal components sit within plain view, but the hard drive bays could be easier to access. In our anonymous calls to Micro Express's support line, we found the representatives' manner abrupt and standoffish.

WHAT ELSE: The ATI graphics board can send the video from a DVD movie out to a television or a home theater system using the included S-video or RCA cables—without the need for a separate decoder card.

BEST USE: The MicroFlex-50C is a solid presentation system for budget users.

2 MICRO EXPRESS MICROFLEX-34D

 **WHAT'S HOT:** This K6-III-400 PC outsourced some of the Pentium III-450 systems on our midrange chart, thanks in part to its 1MB of level 3 cache—a feature unique to this class of AMD processor. The wide and sturdy MicroFlex-34D sports a nifty case design, and inside, everything is spit-and-polish tidy: We found the power cables neatly tied off to the side. There's also more than enough room to access the four free card slots, two free DIMM sockets, and four free drive bays. The package includes a spiffy 19-inch monitor.

WHAT'S NOT: Easily serviceable this PC is not. The case would benefit from some thumbscrews; as designed, you need a screwdriver to get inside. And not all the system's components are top-notch, though they're perfectly adequate for typical business tasks and office work.

Extra features	Design and expandability	Vendor's system reliability	Tech support quality/policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)	Product info number ¹
Good: ATI Rage 128GL graphics with 32MB of SDRAM, 17-inch monitor, 5X DVD-ROM, V.90 modem	Good: 4 open drive bays, 6 open slots	+	Fair */ Outstanding	24/7, toll-free	4/4	769
Good: Diamond Monster Fusion graphics with 16MB of SGRAM, 19-inch monitor, 14X-32X CD-ROM, V.90 modem	Good: 4 open drive bays, 4 open slots	+	Fair */ Outstanding	24/7, toll-free	4/4	770
Satisfactory: ATI Xpert@Play98 graphics with 8MB of SGRAM, 15-inch monitor, 17X-40X CD-ROM, V.90 modem	Good: 4 open drive bays, 4 open slots	+	Fair */ Outstanding	24/7, toll-free	Varies */3	771
Satisfactory: ATI Rage Pro Turbo graphics with 8MB of SDRAM, 15-inch monitor, 16X-40X CD-ROM, network card	Satisfactory: 4 open drive bays, 2 open slots	+	Fair */ Outstanding	24/7, toll-free	Varies */3	772
Good: 3dfx Voodoo3 2000 graphics with 16MB of SGRAM, 17-inch monitor, 4.8X DVD-ROM, V.90 modem	Good: 6 open drive bays, 6 open slots	Good +	Fair */ Good	24/7, toll-free	3/1	773
Good: Intel 740 graphics with 8MB of SDRAM, 17-inch monitor, 4.8X DVD-ROM, V.90 modem	Satisfactory: 3 open drive bays, 4 open slots	+	Good */ Outstanding	24/7, toll-free	3/3	774
Satisfactory: Intel 740 3D graphics with 8MB of SGRAM, 17-inch monitor, 16X-40X CD-ROM, V.90 modem	Very good: 3 open drive bays, 4 open slots	+	Fair */ Fair	12.5/6, toll-free	Varies */1	775
Satisfactory: Integrated SIS 620 graphics with 8MB of UMA, 15-inch monitor, 12X-24X CD-ROM, network card	Good: 1 open drive bay, 3 open slots	Fair	Good/ Fair	12/5, toll-free	3/1	776
Satisfactory: STB Velocity 128 graphics with 8MB of SGRAM, 15-inch monitor, 12X-40X CD-ROM, V.90 modem	Good: 2 open drive bays, 3 open slots	+	Good */ Good	24/7, toll-free	3/1	777
Satisfactory: Matrox Millennium G200 graphics with 8MB of SGRAM, 17-inch monitor, 20X-40X CD-ROM, V.90 modem	Satisfactory: 5 open drive bays, 4 open slots	+	Good */ Good	24/7, toll-free	3/3	778
Extra features 10 percent	Design and expandability 15 percent	Reliability 15 percent	Support and warranty 15 percent			All products: 902

¹ Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs.

² Due to insufficient data from the Reliability and Service survey for the vendor's work PCs, this rating is derived from anonymous support-quality calls, from survey scores for the vendor's home PCs, or from both.

³ Five years on CPU and main RAM, three years on other parts.



AUDIOPHILES' DELIGHT: Whether you watch a movie or a training video on the Micro Express MicroFlex-50C, the sound quality will be superb, thanks to Altec Lansing's ACS44 speakers.

WHAT ELSE: A good array of component manuals (but no overall system guide) accompanies the system. Micro Express's support technicians responded accurately

but tersely to questions in our anonymous support-quality calls.

BEST USE: A fine no-frills machine for small or home offices.

3 MIDWEST MICRO OFFICE PRO XPO-400

WHAT'S HOT: Selling for only \$1069, this Pentium II-400 PC posted a respectable score of 199 on our PC World-Bench 98 tests—comparable to other systems in its processor class. The interior has plenty of expansion room, with four open drive bays and slots.

WHAT'S NOT: The 15-inch KDS-5110 monitor that came with our unit displayed fuzzy images at most resolutions. Removing and reattaching the "tool-less" case takes some work. The Office Pro XPO-400's generic manual contains a

fairly comprehensive glossary of technical terms for beginners, but few specifics about the particular system. In our last survey, PC World subscribers rated Midwest Micro's support quality as Fair.

WHAT ELSE: Midwest Micro includes a 17X-40X CD-ROM drive and an average-size 10.2GB hard drive with the system. It also bundles Microsoft Office 2000.

BEST USE: The Office Pro XPO-400 should live up to its name in any small business or home office.

4 MIDWEST MICRO OFFICE MWO-400C

WHAT'S HOT: A peppy performer in our PC WorldBench 98 tests, this Midwest Micro system is among the fastest machines we've seen in its class of Celeron-400 PCs. The MWO-400C is exceptionally easy to set up; its box includes a color foldout installation poster complete with technical support information. ▶

WHAT'S NOT: While the setup guide offers good information, there isn't much else in the way of documentation. The system uses two redundant power switches, one in front and one on the back of the power supply, which could cause some confusion for new users.

WHAT ELSE: The system is light on multimedia, but it does include a Cyber Acoustics CA-50 speakers-and-subwoofer set and a crisp, 15-inch KDS monitor.

BEST USE: This \$979 bargain shines as a superb workstation (though you might want to pay \$79 more to upgrade to a 17-inch monitor).

5 QUANTEX M466-2C

WHAT'S HOT: This Celeron-466 Quantex earned a 209 on our PC WorldBench 98 tests, the third-highest performance rating on our budget chart. The interior offers opportunities for expansion—you get a whopping six open slots and six



JUST THE BASICS:

At \$1069, MidWest Micro's

Office Pro XPO-400 is a low-cost computer suitable for small-business and home office applications.

open drive bays—and the cables are bundled together and pulled out of the way to ease upgrades and repairs.

WHAT'S NOT: In our tests, the 17-inch Quantex AT897C monitor suffered from badly blurred text at its 1600 by 1200 setting, and remained fuzzy even at a more standard 1024 by 768 resolution.

WHAT ELSE: The system also houses a

4.8X DVD-ROM drive that provides smooth, uninterrupted video playback, even with several applications running in the background.

BEST USE: A small or home office on a budget could do much worse than this fast, multipurpose system.

6 AXIS SYSTEMS ORION LXN

WHAT'S HOT: With a PC WorldBench 98 score of 193, the Orion LXN ranks higher than all other Celeron-400 machines we've seen (regardless of price) equipped with 64MB of memory. A quality ADI VD-697 17-inch monitor and a 4.8X DVD-ROM drive help the Orion adapt to both work and play.

WHAT'S NOT: The generic case is difficult to open and contains duplicate power switches on the front and back, which might confuse some computer users. The system would also benefit from color-coding or better labeling of the rear ports.

WHAT ELSE: The three-year parts and labor warranty is a good deal, as is Axis Systems' technical support, which is available around the clock. A large, foldout setup poster accompanies the clearly written and helpful documentation.

BEST USE: Home office users with filetmignon dreams but a burger-and-fries budget will appreciate the Orion LXN.

A Processor Power Struggle: K6-III Versus Pentium III



IN OUR RECENT TESTS, systems equipped with AMD's latest K6-III processors have outperformed systems with Pentium II and Pentium III CPUs of the same clock speed—a trend that could bode ill for processor giant Intel. Surprisingly, we've seen this phenomenon occur not only in low-end budget systems, but in all classes of PCs.

Case in point: This month, we tested the Sys Performance 450 K3, powered by a K6-III-450 processor. This system (which didn't make the midrange chart) scored 231 on our PC WorldBench 98 tests. The similarly configured Axis Systems Orion 100C DVD, which uses a Pentium III-450, garnered a WorldBench 98 score of 210 (and placed eighth on the midrange chart). The average user will notice the Sys's 10 percent speed advantage when running standard business apps. Though this particular Sys costs more than the PIII-450 Axis (because Sys configures the Performance 450 K3 with more-expensive, though performance-neutral, components), the average AMD system costs significantly less than comparable Pentium-based computers.

AMD's introduction of its new K7 processors—code-named Athlon—may fortify its competitiveness. K7 chips feature a 200-MHz system interface, 128KB of primary cache, and an estimated price point of \$200 to \$400 below those of comparable Pentium IIIs. In our first tests of the chip, a Compaq Presario running a K7 outpaced Compaq's own Prosignia PIII-600 by 10 percent (see September's *Top of the News*, www.pcworld.com/sept99/TON_K7). Though most PC makers will likely stick with Intel chips in the short term, especially for their top-of-the-line PCs, the K7's performance numbers suggest that AMD could turn out to be the David to Intel's Goliath.



7 KINGDOM PINNACLE 400S

WHAT'S HOT: Equipped with a 10.2GB Seagate hard drive and an excellent 17-inch monitor, this \$947 system—the second-cheapest on our chart—offers high-end components at a fire-sale price. You don't lose out on expandability, either: A roomy case allows easy access to a bounty of free slots and bays.

WHAT'S NOT: The Pinnacle 400s turned in a subpar PC WorldBench 98 score of 172, the lowest we've seen for a system in its processor class. In addition, tech support is limited to 12.5 hours Monday through Saturday only; novices may end up searching for help in the included, second-rate user guide. The system doesn't come with a setup sheet. Ports are labeled but not color-coded.

WHAT ELSE: Kingdom bundles the ergonomically designed Microsoft Nat- ▶

A man is lying on his back on a blue inflatable pool float in a swimming pool. He is wearing blue swim trunks and has his hands behind his head. Two drinks are on the float: one with a red umbrella and a slice of orange, and another with an orange slice. The background is the blue water of the pool.

Live it up with RAM!

Do you have enough RAM to make a splash?

www.RAMmatters.com

Hummm...

"A memory upgrade pays for itself
in just over a day for managers."
PC Computing Magazine

ural Keyboard with every one of its PCs. Regardless of whether you like the unusual curvilinear shape of the keyboard, it offers crisp action for touch typists. Kingdom also includes a 16X-40X CD-ROM drive and a V.90 modem with the PC.

BEST USE: The Pinnacle 400s is a solid machine for savvy SOHO users who can troubleshoot problems themselves after business hours.

8 HP BRIO BA C433

WHAT'S HOT: With a PC WorldBench 98 score of 192, this system falls just a few points shy of ranking as the fastest performer in its processor class. Its attractive minitower case matches the gray-on-charcoal styling of the bundled 15-inch monitor, which delivers one of sharpest pictures we've seen. The speakers produce sound that's better than most.

WHAT'S NOT: The integrated SiS 620 graphics chip uses UMA graphics memory. As with other PCs using this kind of memory, the Brio BA C433 performed poorly in our 3D tests. If you plan to use the C433 for multimedia, at the very least you should consider upgrading to a good PCI graphics board. The PC lacks hardware reset and power switches: A tap of a key on the keyboard may power up the machine, but if the system freezes, you're forced to yank out the power cord in order to shut down or reboot. The interior is for the most part obstructed by the power supply, complicating access to cards and drive bays for upgrades or repairs. The 4.3GB hard drive seems pitifully meager in an age of 18GB storage or more.



ROOM TO GROW: Quantex's M466-2c offers six open drive bays and six free card slots for upgrades.

WHAT ELSE: The Brio BA C433 lacks a setup sheet, but the manuals and online help are excellent. Hewlett-Packard should extend color-coding beyond the mouse and keyboard ports. On the other hand, the included keyboard features a host of quick-launch buttons for applications or Internet sites.

BEST USE: The absence of a basic setup manual relegates the network-ready, speedy C433 to offices with IS support (and a few power strips).

9 ACMA A333

WHAT'S HOT: The A333 offers terrific performance for its bargain-basement price. At \$798, the Acma costs \$149 less than the next-cheapest system on the chart, Kingdom's Celeron-400 Pinnacle 400s. The Acma's PC WorldBench 98 score of 172 is on a par with the Kingdom, too. Our anonymous calls confirm that Acma's technical support staff handles most queries with ease.

WHAT'S NOT: While the keyboard Acma bundles with the PC offers crisp action, the keys themselves feel too loose. The tinny speakers that accompany the A333 reduce the system's multimedia appeal. A steel support bar and a large power supply obstruct access to the interior components, and the 4.3GB hard drive is small compared with those of most competitors (though it's still large enough to store standard office applications).

WHAT ELSE: The system offers respectable 3D performance and ships with an Impression 5Vxm monitor, one of the better 15-inch models you'll find in a sub-\$1000 PC. Its affordability makes this Acma an attractive choice for first-time buyers, and equipped with either headphones or better speakers, it makes an excellent game machine after business hours.

BEST USE: Good performance and a superlow price qualify this as a great all-around SOHO machine.



BYE-BYE, FLAT KEYBOARD: Every Kingdom system, including the number-seven Pinnacle 400s, comes with an ergonomic Microsoft Natural Keyboard like the one pictured here.

10 XI COMPUTER 333A MTOWER

WHAT'S HOT: One of the fastest computers in its processor class, the 333A MTower also boasts a 14GB hard drive and a sharp 17-inch Optique V73 monitor. The system comes with a handy combination

microphone/headset for use with the speakerphone jacks on the bundled Lucent modem. Five open bays and four open slots leave oodles of room for expansion and upgrades.

WHAT'S NOT: The Xi 333A comes with no system documentation, just individual component manuals; and despite the bundled LAN-ready network utilities—including LANdesk Client Manager and a DMI wizard—it doesn't ship with a network adapter. A wide bar runs across the interior of the computer, hampering access to the two 5.25-inch drive bays.

WHAT ELSE: The system includes Microsoft Office 97 Small Business Edition.

BEST USE: A very good system for small businesses or home offices; with a network card, it could become indispensable in a larger corporate environment. ▶

ALSO NEW THIS MONTH



WE EVALUATED the following systems along with the others, but they didn't score high enough to reach the Top 10 Budget PCs chart. For write-ups, visit PC World Online (www.pcworld.com/t10pcs).

- ◆ Polywell Poly 810CW-433
- ◆ EMachines ETower 400i

Council on Computing Power Says More Memory Is Better

Where you buy it — is Crucial.

Buy direct from one of the largest memory manufacturers in the world. Factory-direct savings, selection, performance and reliability — Memory is Crucial.

Compare the Savings . . .

	64MB Upgrade	Kingston	Crucial
Compaq			
Presario 5070	\$93.00		68.39
Deskpro EN C400	\$93.00		62.69
Deskpro EP 6400	\$93.00		68.39
Presario 1255 Laptop	\$91.00		62.69
Micron Electronics			
Millennia 400	\$93.00		62.69
Millennia MME P200	\$93.00		62.69
ClientPro VXE 200/233	\$93.00		68.39
TransPort Trek2 Series	\$119.00		62.69
Gateway			
G6-300	\$93.00		62.69
P5-200	\$314.00		161.49
GP6-300	\$93.00		62.69
IBM			
Aptiva (2140)	\$93.00		62.69
PC 300GL (6591)	\$93.00		62.69
PC 300PL (6892-50U)	\$93.00		68.39
HP			
Pavilion 3260	\$93.00		62.69
BRIO 8338	\$93.00		62.69
Vectra VL Series 8	\$93.00		68.39
Apple			
iMac	\$91.00		62.69
Power Mac 6500 Series	\$222.00		170.99
Power Mac G3	\$93.00		62.69
Power Mac G3 PC100	\$93.00		68.39

Crucial prices reflect a 5% discount for placing your order online. Prices were current as of 8/5/99, however, they can (and do) change daily.

Individual prices may vary according to your specific system and memory type.

(All prices were taken from the Web sites of Crucial and Kingston on 8/5/99)

Live it up with
RAM!
Do you have enough RAM to make a splash?
www.RAMmatters.com

"A memory upgrade pays for itself in just over a day for managers."
— PC Computing Magazine

Online discounts for over 30,000 upgrades at:
www.crucial.com/pcwd
or call toll free 1-877-567-9928

The memory experts.

Circle 56 on card or go to www.pcworld.com/productinfo

crucial
TECHNOLOGY
A Division of Micron®

TOP 10 NOTEBOOK PCs

POWER NOTEBOOK: \$2300 AND OVER		Month tested	★ Overall rating	Street price (as of 7/9/99)	PC WorldBench 98 performance score 	Base configuration
1	 Dell Latitude CPl A366XT 800/388-8542 www.dell.com	May 99	88	Average: \$2898	 184	Good: Pentium II-366, 13.3-inch active screen, touchpad pointing device, 64MB of RAM, 6.4GB hard drive
2	Dell Inspiron 7000 A366LT 800/388-8542 www.dell.com	Apr 99	87	Average: \$2924	 191	Very good: Pentium II-366, 15-inch active screen, touchpad pointing device, 64MB of RAM, 10GB hard drive
3	Gateway Solo 5150LS 800/315-2536 www.gateway.com	Apr 99	85	Average: \$2999	 186	Very good: Pentium II-366, 14.1-inch active screen, touchpad pointing device, 64MB of RAM, 6.4GB hard drive
4	Quantex T-1411 800/896-4898 www.quantex.com	NEW	83	Inexpensive: \$2499	 185	Very good: Pentium II-366, 14.1-inch active screen, touchpad pointing device, 128MB of RAM, 6GB hard drive
5	Gateway Solo 9150LS 800/315-2536 www.gateway.com	July 99	82	Expensive: \$3499	 188	Outstanding: Pentium II-366, 15-inch active screen, touchpad pointing device, 128MB of RAM, 10GB hard drive
BUDGET NOTEBOOK: UNDER \$2300		Percent of overall rating ▶		Price 14 percent	Performance 20 percent	Base configuration 5 percent
1	 Dell Inspiron 3500 C366GT 800/388-8542 www.dell.com	Sept 99	89	Expensive: \$2146	 177	Very good: Celeron-366, 14.1-inch active screen, touchpad pointing device, 64MB of RAM, 6.4GB hard drive
2	Chem USA ChemBook 7200 800/866-2436 www.chemusa.com	Aug 99	83	Inexpensive: \$1499	 165	Good: Celeron-333, 12.1-inch active screen, touchpad pointing device, 64MB of RAM, 4.8GB hard drive
3	HP OmniBook XE2 800/322-4772 www.hp.com	July 99	81	Average: \$1899	 166	Good: Celeron-333, 12.1-inch active screen, touchpad pointing device, 64MB of RAM, 4GB hard drive
4	Toshiba Satellite 4030CDT 800/867-4422 www.toshiba.com	Sept 99	81	Average: \$1799	 160	Good: Celeron-300, 13.3-inch active screen, eraserhead pointing device, 64MB of RAM, 4.1GB hard drive
5	Micron TransPort Trek2 888/634-8799 www.micronpc.com	Sept 99	80	Expensive: \$2299	 184	Very good: Celeron-400, 14.1-inch active screen, touchpad and eraserhead, 64MB of RAM, 4.3GB hard drive
 Best Buy		Percent of overall rating ▶		Price 20 percent	Performance 14 percent	Base configuration 5 percent

¹ Includes computer; adapter; power cord; and floppy, DVD-ROM, or CD-ROM drive.

² For more information about the products listed in this table, select number 905 on the product information card or visit www.pcworld.com/productinfo.

³ Insufficient data to give a rating.

⁴ Due to insufficient data from survey, score is based on responses to anonymous calls for tech support.



PC COMPANIES LOVE to show off their technological prowess, even when it makes little difference to most users.

Take the Godzilla-size mobile hard drives now appearing in notebooks. Two portables on this month's chart have 10GB hard drives, and Micron's TransPort NX—with a 14GB hard drive—almost made

the grade. With a second hard drive in its modular bay, the Micron can store 28GB of data. You might need that much space if you store lots of high-resolution digital images on your laptop, but for most users a 4.3GB or 6.4GB hard drive is plenty big.

PENTIUM II-400s STILL LAG

WE TESTED SEVEN new notebooks this month, including four models with Intel's new Pentium II-400 CPU. However, none of these made the chart—their high cost doesn't justify the slight performance

advantage over PII-366 notebooks. For now, power users are probably better off sticking with a PII-366, which is a hair slower but hundreds of dollars cheaper.

In fact, the one new notebook that joins our charts this month is PII-366-based. Quantex's \$2499 T-1411, a virtual twin of our budget number-one Dell (the \$2146 Inspiron 3500 C366GT), takes fourth place on the power chart. It has the same flexible modular bay as the Dell Inspiron laptop and includes a DVD-ROM drive, but it falls a little short in battery life.

POWER NOTEBOOKS

1 DELL LATITUDE CPl A366XT



WHAT'S HOT: According to our latest reader survey, Dell's notebooks are very reliable. The speedy Latitude CPl A366XT is lighter and less bulky than most desktop-replacement notebooks. It's easy to expand, too: In addition to holding the included floppy drive, CD-ROM drive, or empty weight-saver module, the multipurpose bay can accommodate a second battery (\$169), a 4X DVD-ROM drive (\$299), a second hard drive that stores up to 10GB of data (\$499), or an LS-120 removable-storage drive (\$199).

WHAT'S NOT: The \$2898 price doesn't include a modem, and the battery lasted a barely acceptable 2 hours and 15 minutes in our tests. Dell doesn't supply any print-

Extra features	Design and ease of use	Battery life (hours:min)	Traveling weight (pounds) ¹	Vendor's system reliability	Tech support quality	Tech support policies: hours/days, charge	Warranty for parts/labor (years)	Product info number ²	
Good: 10X-24X CD-ROM drive, no modem, multipurpose bay takes second battery	Very good: easy to upgrade	Satisfactory: 2:15	Light: 7	Outstanding	Good	Good: 24/7, toll-free	3/3	-	
Very good: 4X DVD-ROM drive, V.90 modem, multipurpose bay holds both floppy and DVD-ROM drive, or second battery	Average: subpar audio	Good: 3:24	Very heavy: 10.4	Outstanding	Good	Good: 24/7, toll-free	3/3	-	
Good: 2X DVD-ROM drive, V.90 PC Card modem, multipurpose bay, notebook accepts only one battery at a time	Very good: thin multi-media laptop	Good: 2:50	Average: 7.7	Good	Good	Good: 24/7, toll-free	3/3	642	
Very good: 2X DVD-ROM drive, V.90 modem, multipurpose bay takes second battery	Average: boxy but versatile	Satisfactory: 2:35	Average: 7.5	3	Good ⁴	Good: 24/7, toll-free	Varies ³ /1	643	
Very good: 2X DVD-ROM drive, LS-120 drive, V.90 modem, multipurpose bay takes second battery	Average: tiny mouse buttons	Good: 3:17	Very heavy: 9.8	Good	Good	Good: 24/7, toll-free	3/3	644	
Extra features 5 percent	Design and ease of use 10 percent	Battery life 8 percent	Weight 8 percent	Reliability 20 percent	Support and warranty 10 percent				
Very good: 10X-24X CD-ROM drive, V.90 modem, multipurpose bay takes second battery	Average: boxy but versatile	Good: 2:59	Average: 7.6	Outstanding	Good	Good: 24/7, toll-free	3/3	-	
Satisfactory: 10X-24X CD-ROM drive, V.90 modem	Average: best feature is great keyboard	Good: 3:20	Light: 6.9	3	Fair ⁴	Fair: 24/7, toll-free	1/3	645	
Satisfactory: 12X-24X CD-ROM drive, V.90 modem	Average: includes business-card holder	Satisfactory: 2:36	Average: 7.5	Good	Good ⁴	Poor: 24/7, toll call ⁴	1/1	646	
Satisfactory: 12X-24X CD-ROM drive, V.90 modem	Average: hard drive is not user-upgradable	Good: 2:57	Average: 7.6	Fair	Fair	Fair: 24/7, toll-free	1/1	647	
Very good: 12X-24X CD-ROM, V.90 modem, multipurpose bay	Very good: versatile desktop replacement	Satisfactory: 2:38	Heavy: 8.7	Good	Good	Good: 24/7, toll-free	Varies ⁷ /3	648	
Extra features 5 percent	Design and ease of use 10 percent	Battery life 8 percent	Weight 8 percent	Reliability 20 percent	Support and warranty 10 percent				All products: 905

¹ Three years on CPU and main memory, one year on other parts.

² Five years on CPU and main memory, one year on other parts.

* Free tech support ends after three years.

ed documentation unless you request it.

WHAT ELSE: You can upgrade memory and the hard drive yourself, and program the mouse buttons to launch your favorite applications. Dell offers good technical support overall, with the occasional lapse in quality. Other notebooks in the Latitude line can use the same modular bay devices as the CPi A366XT.

BEST USE: It's a nice choice for businesses that want to standardize on one vendor's corporate notebooks.

4 QUANTECH T-1411

NEW WHAT'S HOT: You can fill the modular bay with either a second battery or a Zip drive, not just with the included floppy drive or DVD-ROM drive. This notebook also comes ready for work, with the popular Microsoft Office 97 Small Business Edition preinstalled.

WHAT'S NOT: Performance is only average for a Pentium II-366 with 128MB of RAM. The 2.6-hour battery life could be a little better, too.

WHAT ELSE: The \$2499 T-1411 is virtually identical to this month's budget Best Buy, Dell's \$2146 Inspiron 3500 C366-GT. The Quantex's only advantages are a slightly faster processor, a DVD-ROM drive, and bundled software. Quantex's support plan isn't quite as generous as Dell's, with labor covered for only one year. The company's technical support is usually good, according to our anonymous calls, though we've occasionally had to wait on hold or received an off-base answer or two.

BEST USE: The T-1411 is a fine machine for anyone looking for a versatile, relatively inexpensive Pentium II-366 preinstalled with productivity software.

BUDGET NOTEBOOKS

1 DELL INSPIRON 3500 C366GT

WHAT'S HOT: The Inspiron 3500 C366GT's performance is the best you'll find for under \$2150. This Dell system is also versatile: There's ►

THE DELL Latitude CPi A366XT is light for a desktop replacement unit.





THE MODULAR bay in the Quantex T-1411 accommodates a floppy, DVD-ROM, or Zip drive, or a second battery.

only one internal bay, but it holds a range of devices beyond the

bundled floppy or CD-ROM drive, including a second battery (\$119 extra), a DVD-ROM drive (\$249), or a Zip drive (\$139). Dell backs the C366GT with a generous three-year parts and labor warranty.

WHAT'S NOT: This Inspiron doesn't give you much to complain about, unless you prefer snazzier looks than the black, boxy C366GT has to offer.

WHAT ELSE: Memory and the hard drive are easy to upgrade yourself, and one battery lasts almost 3 hours. As with the Latitude CPi A366XT, you can program the mouse buttons to launch the applications you use the most often.

BEST USE: A well-rounded notebook for consumers as well as small businesses.

Near Misses

OF THE OTHER new notebooks we tested this month, Micron's \$3649 TransPort NX came closest to making our list, falling just shy of the power chart. It's the fastest of the four Pentium II-400s we evaluated, earning a PC WorldBench 98 score of 202. Still, that's only 6 percent faster than the average PII-366 we've tested with 128MB of RAM—not enough to make much of a difference in everyday business applications. The TransPort's 2.4-hour battery life could be a little better, too.

But few other notebooks can beat the TransPort NX in terms of storage. Its ability to hold up to 28GB of hard disk space—

combined with a 15-inch screen and plenty of video connections—makes this boxy, black, 9.4-pound desktop replacement a suitable mobile workstation for graphic artists or professional audio-video editors. Other options include an internal Iomega Zip drive and a second battery.

The TransPort NX also comes with a combination MIDI-game port, and both touchpad and stick pointing devices for ergonomic relief. You don't need tools to

access any part of the notebook: The battery and devices in the two modular bays are locked in with optional security screws. And to remove the hard drive or get to memory components, you just lift the wrist rest and keyboard. Our only design beefs: Icons inside the back port cover are too jumbled to help identify connections, and the incredibly stiff swivel-tilt feet are practically unusable.

WINBOOK SHORTCOMINGS

ANOTHER NEW PII-400 that came close to making the power chart is WinBook's XL2. Like the TransPort NX, the WinBook XL2 is a big, heavy multimedia notebook with dual pointing devices. It earned a PC WorldBench score of 200, a tad slower than the TransPort NX. Battery life is better, though, at 3.2 hours. Short support hours and a merely Fair reliability rating from *PC World* readers also hold down its score. Moreover, the WinBook XL2's memory and hard drive are harder to upgrade, and no devices other than CD-ROM and DVD-ROM drives are available for the modular bay. On the bright side, WinBook tends to offer above-average technical support, based on our anonymous calls. Strong documentation includes an exhaustive section on upgrades.

Of all the PII-400s we've tested, Compaq's \$2650 Prosignia 165 turned in the worst performance. Its PC WorldBench 98 score of 183 is a hair below average for a PII-366. The battery performed a little below par, lasting 2.5 hours. Still, if you're looking for the Cadillac of desktop replacements, consider the 8.4-pound Prosignia 165. It's a terrific presentation PC,

with the best built-in audio available, no-tools upgrading, and a modular bay capable of holding the full range of notebook add-ins, including a second battery, a second hard drive, Zip and LS-120 drives.

OMNIBOOK TOO PRICEY

HEWLETT-PACKARD's OmniBook 4150, the fourth PII-400 we tested this month, puts a classy new spin on the new processor with a thin 1.6-inch-thick case, a versatile modular bay, a powder-blue power button, and purple eraserhead. The cost for this cool elegance: a jaw-dropping \$3999. You can upgrade the OmniBook's memory and hard drive yourself, and you have lots of options for the bay. HP even squeezes two pointing devices into this 7.6-pound portable. But the OmniBook performs no better than the WinBook XL2. In fact, several other notebooks, such as NEC's Versa SX, offer many of the same features for a lot less dough.

Trogon's \$2699 Q24 Plus—the only other PII-366 besides the Quantex we reviewed this month—performed typically for its processor, with a PC WorldBench score of 183. It offers a built-in floppy drive and removable CD-ROM drive, easy-to-upgrade parts, and some nice multimedia extras, including game, video-out, and video-in ports. You can swap the CD-ROM drive for an optional second battery (\$195), a Zip drive (\$275), a DVD-ROM drive (\$275), or a second hard drive. But a modem costs extra, and support is threadbare: There's no technical support on weekends, and you have to pay for a long-distance call during the week.

TRANSMONDE PACKS IT IN

TRANSMONDE, a three-year-old notebook vendor, shut its doors August 14, succumbing to the cutthroat notebook market. A Transmonde spokesperson said ASE Technologies, the original supplier for Transmonde's portables, will provide some warranty and repair service. (At press time, limited information was available at www.aseusa.com/ttiwarr.html).

—Carla Thornton

Contributing Editor Carla Thornton regularly covers notebooks for *PC World*.

Wayne Gretzky
knows the importance of
control on ice.

So does
Goodyear.

GOODYEAR

©1999, The Goodyear Tire & Rubber Company. All rights reserved.

Goodyear Ultra Grip Ice Slippery, snow-covered, icy roads are a challenge no matter what you drive. That's why Goodyear developed Ultra Grip Ice tires. Goodyear's newest response to winter driving. Our exclusive IceLoc™ compound allows the tread to remain pliable and gripping

at extremely low temperatures. You get outstanding winter traction for accelerating and especially braking. Help keep your car, yourself and your family in control this winter with the Great Ones: Ultra Grip Ice tires. Only from Goodyear.

Goodyear. Number One in tires.



Enter for a chance to win the Goodyear Ultra Grip Ultra Trip. The Place to Be Millennium Eve.




Celebrate the new millennium in all four time zones. Ultra trip includes: • Air transportation to New York for winner and 5 friends • Chartered jet takes you from N.Y. to L.A. • Gourmet dinner aboard the jet • Live entertainment & celebrities • Tickets to the Rose Bowl Game® & Rose Parade® • PLUS a 2000 Mazda Millennium Edition Millenia® luxury sedan complete with a set of Goodyear Ultra Grip Ice Tires. Visit your participating Goodyear retailer for details or visit our website at www.goodyear.com. For an Official Entry Form/Rules, send a self-addressed stamped envelope to: Goodyear Sweepstakes, P.O. Box 5475, Blair, NE 68009-5475, to be received by 11/8/99. No purchase necessary. Void in FL and where prohibited. Open only to residents of the U.S. and Canada who are 21 or older as of 11/29/99, when sweepstakes ends. Call 1-800-GOODYEAR for the participating retailer nearest you.

Millenia is a registered trademark of Mazda North American Operations. All rights reserved.

Partners: **mazda** **PROAIR**



TOP 10 HOME PCs

	POWER SYSTEM	Month tested	★ Overall rating	Street price (as of 7/9/99)	PC WorldBench 98 performance score ¹	Base configuration
1	 Dell Dimension XPS T550 800/388-8542 www.dell.com	Aug 99	92	Expensive: \$2479	Outstanding 241	Pentium III-550, 128MB of SDRAM, 512KB L2 cache, 20GB hard drive, midsize tower case, 19-inch monitor, Windows 98
2	Gateway Performance 500 800/315-2536 www.gateway.com	Apr 99	87	Inexpensive: \$1929	Very good 229	Pentium III-500, 64MB of RAM, 512KB L2 cache, 13.6GB hard drive, midsize tower case, 19-inch monitor, Windows 98
3	Micron Millennia Max 500 888/634-8799 www.micronpc.com	Aug 99	87	Average: \$2316	Outstanding 236	Pentium III-500, 128MB of SDRAM, 512KB L2 cache, 20GB hard drive, tower case, 17-inch monitor, Windows 98
4	Quantex SM550 SE 800/896-4898 www.quantex.com	Aug 99	87	Expensive: \$2399	Outstanding 239	Pentium III-550, 128MB of SDRAM, 512KB L2 cache, 17GB hard drive, midsize tower case, 19-inch monitor, Windows 98
5	Sony VAIO Digital Studio PCV-R528DS 888/315-7669 www.sony.com/pc	Aug 99	85	Expensive: \$2499	Good 219	Pentium III-500, 128MB of SDRAM, 512KB L2 cache, 13GB hard drive, minitower case, 17-inch monitor, Windows 98
BUDGET SYSTEM		Percent of overall rating ▶		Price 10 percent	Performance 20 percent	
1	 Quantex M466c 800/896-4898 www.quantex.com	NEW	85	Inexpensive: \$949	Outstanding 208	Celeron-466, 64MB of SDRAM, 128KB L2 cache, 6GB hard drive, midsize tower case, 15-inch monitor, Windows 98
2	Dell Dimension L400c 800/388-8542 www.dell.com	NEW	85	Inexpensive: \$939	Very good 185	Celeron-400, 64MB of SDRAM, 128KB L2 cache, 6.4GB hard drive, minitower case, 15-inch monitor, Windows 98
3	Gateway Essential 466c 800/315-2536 www.gateway.com	Sept 99	81	Average: \$1263	Outstanding 208	Celeron-466, 64MB of SDRAM, 128KB L2 cache, 8.4GB hard drive, midsize tower case, 17-inch monitor, Windows 98
4	Micron Millennia C466 888/634-8799 www.micronpc.com	Sept 99	80	Expensive: \$1393	Outstanding 211	Celeron-466, 64MB of SDRAM, 128KB L2 cache, 15GB hard drive, minitower case, 17-inch monitor, Windows 98
5	CyberMax Enthusiast KIII-400 800/345-8926 www.cybermaxpc.com	NEW	80	Average: \$1249	Outstanding 206	K6-III-400, 128MB of SDRAM, 256KB L2 cache, 10GB hard drive, midsize tower case, 19-inch monitor, Windows 98
 Best Buy		Percent of overall rating ▶		Price 25 percent	Performance 15 percent	


¹A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 221.



SURE, SUB-\$1000 PCs have been around for a while. But not all companies rushed to roll out cheapo systems. This month we finally see a sub-\$1000 system from Dell, the Dimension L400c. Power-hungry users can still pay top dollar for a souped-up Dell machine, such as our number one Dimension XPS T550.

POWER HOME PC

1 DELL DIMENSION XPS T550

 **WHAT'S HOT:** If speed is what you need, this PC runs like Secretariat. It's loaded with a Pentium III-550 CPU, 128MB of RAM, and a Diamond Viper V770 graphics card with a whopping 32MB of video memory. The result: a scorching PC WorldBench 98 score of 241 (currently the highest of any home PC) and terrific graphics performance. The 19-inch monitor displayed

clean text—even at small font sizes—and good color. Other pluses: a vast 20GB hard drive, a Zip drive, plenty of room inside to add cards and drives, and Altec Lansing ACS340 speakers that produce rich, full tones.

WHAT'S NOT: The \$2479 price is on the expensive side. If you can live with a smaller screen, opting for a 17-inch monitor (instead of the standard 19-incher) will save you up to \$250. You won't find many bundled applications with the XPS Dimension T550—the only software of


note is Microsoft's WorksSuite 99, which includes Word 97.

WHAT ELSE: Dell's computer cases are among the easiest to open and lift off. The T550's slide-on-and-off panel makes upgrading components less of a chore.

BEST USE: With its speed and advanced hardware, the T550 is a great hedge against premature obsolescence for the demanding home-office user. Thanks to the huge amount of graphics memory, gamers and video fanatics also might want to give this system a try.

BUDGET HOME PC

1 QUANTEX M466C

 **WHAT'S HOT:** The Celeron-466-based M466c is very fast for a \$949 PC. You also get a lot of hardware for your money: The price

Extra features	Setup/ ease of use	Graphics	Reliability/ support	Comments	Product info number [†]
Excellent: Diamond Viper V770 graphics with 32MB of video RAM, 4.8X DVD-ROM drive, V.90 modem, Zip drive.	Outstanding/ Outstanding	Very good	Good/ Outstanding	PRO: Fastest home PC so far, exceptionally good speakers, very expandable. CON: Short on bundled software.	—
Very good: STB Velocity 4400 graphics with 16MB of video RAM, 4.8X DVD-ROM drive, V.90 modem.	Outstanding/ Very good	Outstanding	Fair/ Good	PRO: Cheapest power home PC, very fast, great sound. CON: Has half the memory of other power models here, mediocre software package.	651
Very good: Diamond Viper V550 graphics with 16MB of video RAM, 4X DVD-ROM drive, V.90 modem.	Good/ Very good	Very good	Good/ Good	PRO: Speedy performance, innovative case design, very expandable. CON: Limited documentation for novices.	652
Excellent: 3dfx Voodoo3 3000 graphics with 16MB of video RAM, 4X DVD-ROM drive, V.90 modem, Sony CD-RW drive, Zip drive.	Good/ Good	Very good	Good/ Good	PRO: Superfast, terrific speakers, Microsoft Natural Keyboard. CON: Monitor blurry on small text, poor setup manuals.	653
Very good: ATI Xpert 128 graphics with 16MB of video RAM, 4X DVD-ROM drive, V.90 modem, Sony CD-RW drive.	Outstanding/ Very good	Outstanding	Good/ Fair	PRO: Software and hardware goodies for image editing. CON: Priciest PC in mix, small hard drive considering PC's digital video features.	654
Extra features 15 percent	Setup/ease of use 5 percent	Graphics 10 percent	R & S 40 percent		
Very good: Intel 740 graphics with 8MB of video RAM, 6X DVD-ROM drive, K56flex modem.	Very good/ Outstanding	Very good	Good/ Good	PRO: Speedy, plenty of software titles, very expandable. CON: Big midsize tower takes up lots of room, no easy-off cover, small monitor.	655
Very good: Integrated Intel 810 graphics with 4MB of display memory for 3D graphics, 17X-40X CD-ROM drive, V.90 modem.	Outstanding/ Outstanding	Very good	Good/ Outstanding	PRO: Good price, small but expandable case, built-in ethernet port. CON: Limited range of software titles, small monitor.	—
Very good: Integrated ATI Rage 128 graphics with 8MB of video RAM, 4.8X DVD-ROM drive, V.90 modem, Epson color printer.	Outstanding/ Good	Very good	Fair/ Good	PRO: Excellent performance for the price, includes Epson Stylus Color 460 printer. CON: Expensive for budget system.	656
Good: Integrated NVIDIA RIVA 128zx graphics with 8MB of video RAM, 4.8X DVD-ROM drive, V.90 modem.	Good/ Very good	Very good	Good/ Good	PRO: Fastest budget home PC we've seen, one year of free classes from Micron's online training program. CON: Pricy, mediocre keyboard.	657
Excellent: 3dfx Voodoo3 2000 graphics with 16MB of video RAM, 4.8X DVD-ROM drive, K56flex modem.	Good/ Very good	Very good	Fair/ Good	PRO: Fast, lots of memory, top graphics scores for budget home machine. CON: Setup documentation unclear for novices.	658
Extra features 5 percent	Setup/ease of use 10 percent	Graphics 5 percent	R & S 40 percent		All products: 906

[†] For more information about the products listed in this table, select the number on the product information card or visit www.pcworld.com/productinfo.

includes a 6X DVD-ROM drive and a pair of very clear-sounding Mli SW190 Super speakers. Furthermore, this spacious midsize tower offers more room to grow than just about any budget home system we've seen, with three free externally accessible drive bays, two free PCI slots, and three free ISA slots.

WHAT'S NOT: Setting up the system may challenge inexperienced computer users. Documentation is limited—the user manual consists of a Windows guide that covers only the basics, and much of the hardware information is buried in a separate motherboard manual. Besides being small, the 15-inch monitor that came with our test unit didn't display small text as clearly as we'd like. Finally, despite a strong PC WorldBench 98 score of 208, the M466c fared worse than other budget home PCs in our 3D gaming tests.

WHAT ELSE: Quantex offers quite a range of software titles, which makes it unique in our current mix of systems on the Home PCs Top 10. The M466c comes standard with Corel's WordPerfect Suite 8, a series of Compton's Home Library reference CD-ROMs, and Amazon Trail (a nature game from the Learning Company), among other family-oriented programs. In short, it has something for everyone in the family.

BEST USE: Experienced computer users on the lookout for an affordable home system that provides lots of speed as well as room for expansion will appreciate the M466c. Upgrading to a superior video card ought to improve the Quantex's graphics performance considerably and make this quick Celeron-466 machine an excellent low-cost gaming system or graphics workstation.

2 DELL DIMENSION L400C

NEW WHAT'S HOT: Finally, you can get a Dell PC, backed by the company's outstanding reputation for reliability and support, for under \$1000. Setup is a cinch: All the cables are color-coded, and a clearly illustrated poster walks you through ►



QUANTEX's
fast and expandable
M466c is a great value.

the setup process. Like Dell's T550, the L400c's case is easy to remove (see photo at right). The power supply swings out of the case to give you unobstructed access to the three free PCI slots and one externally accessible drive bay. The Harman/Kardon HK-195 speakers are a cut above most budget PC speakers: If you're fussy about bass tones, you'll love the sound this pair pumps out.

WHAT'S NOT: \$939 gets you a Celeron-400 from Dell, but just \$10 more buys the Quantex M466c, with its faster processor and other perks. The L400c posted a PC WorldBench 98 score of 185, on a par with other Celeron-400 systems but about 15 percent slower than the cheaper Quantex Celeron-466 PC. So the performance return on your investment in Dell's

included in other machines.

CyberMax's \$1249 K6-III-400 system cranked out a PC WorldBench 98 score of 206—comparable to PCs using Celeron-466 or Pentium II-450 processors. The 3dfx Voodoo3 graphics card with 16MB of video RAM helped the KIII-400 post strong scores for a budget system in 3D graphics tests. Finally, it offers lots of expansion room: An easy-off case leads to a spacious interior with unencumbered access to three free externally accessible drive bays, two free internal bays, and four open slots (two PCI and two ISA).

WHAT'S NOT: The big 19-inch monitor displayed several noticeable regions of uneven brightness around the edges. The KIII-400's color-coded cables didn't have corresponding colored sockets, complicating setup; and the user manual was too brief and basic.

WHAT ELSE: The small, cube-shaped Altec Lansing ACS45 speakers and bundled subwoofer produced crystal-clear sound. The Enthusiast KIII-400 comes with a good range of software titles, including the full version of Corel's WordPerfect Suite 8,

Compton's Home Library reference CD-ROMs, and the Learning Company's Oregon Trail (a history game).

BEST USE: As its name implies, it's perfect for the enthusiast setting up a home office. It's also well-suited for families on a no-fat budget; and it's not a bad choice for low-end gamers.

Near Misses

OF THE THREE new home machines that did not make our charts this month, the Aptiva 175 from IBM came closest to cracking the budget list.

The Aptiva 175's \$799 price isn't just hot, it's red-hot—at least for a PC from Big Blue. In this case, however, a super-

low price wasn't enough to land the system on the chart. In the first place, the Aptiva 175 is a very basic unit: It comes with AMD's K6-2-380 processor, 64MB of RAM, and a small 4GB hard drive. What's more, the system's PC WorldBench 98 score of 161 matches that of a typical PII-300 machine.

In addition, the Aptiva 175 uses an integrated SIS 530 graphics chip set and 4MB of video RAM that is shared with the system's main memory—an arrangement that yielded very poor graphics performance scores in our tests.

The Aptiva has one memory slot available. However, the machine's cluttered interior makes upgrades very difficult.

Despite these shortcomings, the Aptiva 175 gives you enough power to surf the Web, balance your checkbook, do homework, and tackle most home-office tasks.

Currently, the Aptiva 175 is available only at the nationwide Best Buy retail chain. IBM says that it may make a similarly configured Aptiva in the near future that will be sold through other retail chains, but at the time of this writing the company could give us no further details.

Oakland, California, writer Kirk Steers is a contributing editor for PC World. ■

ALSO NEW THIS MONTH



We tested two other machines, but they didn't score high enough to make the *Top 10 Home PCs* charts. For write-ups, visit PC World Online (www.pcworld.com/t10homepcs).

- ◆ Gateway Select 475
- ◆ IBM Aptiva 585



CYBERMAX'S ENTHUSIAST KIII-400 is well priced, a good choice for home-office users on a budget.

L400c is questionable. Another downside: This system is not good for heavy-duty graphics, video, or fast-paced games.

WHAT ELSE: If your local area offers DSL or cable Internet access, the Dimension L400c's built-in ethernet port will come in handy. You'll need an ethernet jack to attach DSL and cable modems.

BEST USE: Great for experienced families or home-office users who'll want to add hardware down the road. In particular, the L400c's small footprint will appeal to anyone with space limitations.

5 CYBERMAX ENTHUSIAST KIII-400

NEW WHAT'S HOT: This is the only system on our budget chart with 128MB of memory—twice the amount of RAM



30GB Digital Drives
From \$299

Big space at a small price.

That's the idea behind the OnStream 30GB and 50GB digital storage solutions.

Disk is full. File not found. System error. Frustrated? It's time for a big, easy-to-use, reliable storage solution. Introducing the OnStream 30GB Desktop Digital Drives with OnStream Echo™ software. Now you'll never run out of space or have to go searching for your files ever again. Really. Echo does it all, from completely automatic backup to "drag and drop" storage to effortless organization. And with a media price of about a buck a Gig, OnStream can easily put an end to your storage frustrations. Now that's smart. And OnStream is the company that figured it out with a complete line of storage solutions. To find out more call 1-800-759-4621 ext. 209 or visit www.onstream.com/technology



Recording the Digital Age.™

WinLIST
Windows Magazine 1999

COMPUSA
THE COMPUTER SUPERSTORE

GLOBAL
COMPUTER SUPPLIES

MICRO CENTER
THE COMPUTER DEPARTMENT STORE

MicroWAREHOUSE

CDW Computing Solutions
Built for Business™

© 1999 OnStream, Inc. All rights reserved. All OnStream prices are estimated US street prices. Compressed capacities based on a 2:1 compression ratio, using backup software. The capacity, backup speed and transfer rate will vary with file and system configuration. OnStream, ADR, OnStream Echo, Advanced Digital Recording, the OnStream logo and the ADR logo are trademarks of OnStream, Inc. All other trademarks are properties of their respective owners. All information and specifications are subject to change at any time without notice.

ADR™

Last Year, PC Magazine gave out its Editors' Choice Award to only 5 PC companies: Compaq™, Dell™, Gateway™, HP™ & **AXIS**



Check Out the Better Values We Offer Here, And You'll See Why.



COMPUTER SHOPPER.com
No. 1
SELLING BRAND, 1998

Last year, with our superior value and latest technology, we beat out **Compaq**, **HP**, and **Gateway** to be the **#1 selling PC brand** on the Internet's **#1 PC marketplace computershopper.com**

AXISTERRAAXC

- AMD Athlon™ Processor **500MHz**
- w/Enhanced 3DNow! Technology
- **128MB** 100MHz SDRAM
- **10.1GB** Ultra ATA/66 Hard Drive, 7200RPM
- **6X DVD-ROM** Drive
- 200MHz Front Side Bus, 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- 3DFX Voodoo3 3000 128-Bit 16MB AGP 3D Graphics Accelerator w/TV-Out
- Creative Labs Sound Blaster PCI 128 3D WaveTable Sound Card
- Altec Lansing ACS44 Speakers with Subwoofer
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$1099

Athlon Processor 550MHz \$1299
Athlon Processor 600MHz \$1499
Athlon Processor 650MHz \$1699

AXISTERRAAXP

- AMD Athlon™ Processor **650MHz**
- w/Enhanced 3DNow! Technology
- **256MB** 100MHz SDRAM
- **18.0GB** Ultra ATA/66 Hard Drive, 7200RPM
- **6X DVD-ROM** Drive
- 200MHz Front Side Bus, 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Diamond Viper V770 RIVA TNT-2 128-Bit 32MB AGP 3D Graphics Accelerator
- Creative Labs Sound Blaster Live! Value 3D WaveTable Sound Card
- Creative Labs Cambridge SoundWorks FourPointSurround 1000 Digital 4-Piece Speakers with Subwoofer
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$1999

Athlon Processor 500MHz \$1399
Athlon Processor 550MHz \$1599
Athlon Processor 600MHz \$1799

AXISORION100R DVD

- Intel® Pentium® III Processor **550MHz**
- **128MB** 100MHz SDRAM
- **10.1GB** Ultra DMA Hard Drive
- **6X DVD-ROM** Drive
- 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Diamond Viper V550 RIVA TNT 128-Bit 16MB AGP 3D Graphics Accelerator
- Creative Labs Sound Blaster PCI 128 3D WaveTable Sound Card
- Altec Lansing ACS44 Speakers with Subwoofer
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$1299

Pentium II Processor 400MHz \$999
Pentium III Processor 450MHz \$1059
Pentium III Processor 500MHz \$1099
Pentium III Processor 600MHz \$1499

AXISORION100V DVD

- Intel® Pentium® III Processor **600MHz**
- **128MB** 100MHz SDRAM
- **14.4GB** Ultra DMA Hard Drive, 7200RPM
- **6X DVD-ROM** Drive
- 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Diamond Viper V770 RIVA TNT-2 128-Bit 32MB AGP Graphics Accelerator
- Creative Labs Sound Blaster Live! Value 3D WaveTable Sound Card
- Altec Lansing ACS44 Speakers with Subwoofer
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$1599

Pentium II Processor 400MHz \$1099
Pentium III Processor 450MHz \$1159
Pentium III Processor 500MHz \$1199
Pentium III Processor 550MHz \$1399

call Toll-Free **1-800-378-9014** • Customize your system at **www.axissys.com**



Don't take our word for it...
Take it from the experts.
**The Best
Corporate PC**

When PC Magazine reviewed corporate PC's from all of the industry's top vendors in December 1998, included **Compaq, Dell, Gateway, HP, IBM, and Micron, Axis** was shown as having the **"Most Bang for the Buck"** in both **High-End** and **Mainstream** categories.

AXISTERRAAXM

- AMD Athlon™ Processor **600MHz**
- w/ Enhanced 3DNow! Technology
- **128MB** 100MHz SDRAM
- **13.6GB** Ultra ATA/66 Hard Drive, 7200RPM
- **6X DVD-ROM** Drive
- 200MHz Front Side Bus, 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Diamond Viper V770 RIVA TNT-2 128-Bit 32MB AGP 3D Graphics Accelerator
- Creative Labs Sound Blaster Live! Value 3D Wavetable Sound Card
- Altec Lansing ACS44 Speakers with Subwoofer
- 56K V.90 PCI Voice/Fax/Data Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$1599

Athlon Processor 500MHz \$1199
Athlon Processor 550MHz \$1399
Athlon Processor 650MHz \$1799

AXISTERRAEX3

- AMD K6-2 Processor **450MHz**
- w/ 3DNow! Technology
- **64MB** 100MHz SDRAM
- **8.4GB** Ultra DMA Hard Drive
- 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Integrated SIS 8MB AGP 3D Graphics Accelerator
- 40X Max CD-ROM Drive
- Integrated SoundPro PCI 3D Wavetable Audio
- Altec Lansing ACS22 Speakers
- 56K V.90 PCI Voice/Fax/Data Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$599

K6-2 Processor 400MHz \$599
K6-III Processor 400MHz \$659
K6-III Processor 450MHz \$699

AXISTERRAMX8

- AMD K6-2 Processor **450MHz**
- w/ 3DNow! Technology
- **64MB** 100MHz SDRAM
- **8.4GB** Ultra DMA Hard Drive
- **6X DVD-ROM** Drive
- 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Creative Labs 3D Blaster Banshee 16MB AGP Graphics Accelerator
- Integrated SoundPro PCI 3D Wavetable Audio
- Altec Lansing ACS22 Speakers
- 56K V.90 PCI Voice/Fax/Data Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$699

K6-2 Processor 400MHz \$659
K6-III Processor 400MHz \$759
K6-III Processor 450MHz \$799

AXISTERRAMX12

- AMD K6-III Processor **450MHz**
- w/ 3DNow! Technology
- **128MB** 100MHz SDRAM
- **10.1GB** Ultra DMA Hard Drive
- **6X DVD-ROM** Drive
- 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Diamond Viper V550 RIVA TNT 128-Bit 16MB AGP 3D Graphics Accelerator
- Creative Labs Sound Blaster PCI 128 3D Wavetable Sound Card
- Altec Lansing ACS44 Speakers with Subwoofer
- 56K V.90 PCI Voice/Fax/Data Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$999

K6-2 Processor 400MHz \$859
K6-2 Processor 450MHz \$899
K6-III Processor 400MHz \$959

AXISORIONLXC/VE

- Intel® Celeron™ Processor **433MHz**
- **64MB** SDRAM
- **8.4GB** Ultra DMA Hard Drive
- 128K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Intel i740 8MB AGP 3D Graphics Accelerator
- 40X Max CD-ROM Drive
- Yamaha SoftSynth PCI 3D Wavetable Sound Card
- Altec Lansing ACS22 Speakers
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$699

Celeron Processor™ 400MHz \$669
Celeron Processor™ 466MHz \$729
Celeron Processor™ 500MHz \$769

AXISORIONLXN

- Intel® Celeron™ Processor **500MHz**
- **128MB** SDRAM
- **10.1GB** Ultra DMA Hard Drive
- 128K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Intel i740 8MB AGP 3D Graphics Accelerator
- 40X Max CD-ROM Drive
- Yamaha SoftSynth PCI 3D Wavetable Sound Card
- Altec Lansing ACS44 Speakers with Subwoofer
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$899

Celeron™ Processor 400MHz \$799
Celeron™ Processor 433MHz \$829
Celeron™ Processor 466MHz \$859

AXISORION100C

- Intel® Pentium® III Processor **450MHz**
- **64MB** 100MHz SDRAM
- **8.4GB** Ultra DMA Hard Drive
- 512K L2 Cache
- Intel 440BX AGP Set
- 1.44MB 3.5" Floppy Drive
- Intel i740 8MB AGP 3D Graphics Accelerator
- 40X Max CD-ROM Drive
- Yamaha SoftSynth PCI 3D Wavetable Sound Card
- Altec Lansing ACS22 Speakers
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$859

Pentium III Processor 500MHz \$899
Pentium III Processor 550MHz \$1099
Pentium III Processor 600MHz \$1299



Monitor Options

Add a 15" (13.8vis) .28 Monitor, \$139
Add a 17" (16.0vis) .28 Monitor, \$219
Add a 17" (16.0vis) .26 Monitor, \$259
Add a 19" (18.0vis) .26 Monitor, \$359
Add a 15" LCD Flat Panel, \$899

Upgrade Options

Add an Iomega 100MB Zip Drive, \$79
Add a 3Com 100Mbit Network Adapter, \$69
Upgrade from 64MB to 128MB, \$69
Upgrade from 128MB to 256MB, \$139

Software & Accessories

Call for Optional Software Bundles and Accessories

AXISORION100C/SE

- Intel® Pentium® III Processor **500MHz**
- **128MB** 100MHz SDRAM
- **10.1GB** Ultra DMA Hard Drive
- 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Intel i740 8MB AGP 3D Graphics Accelerator
- 40X Max CD-ROM Drive
- Yamaha SoftSynth PCI 3D Wavetable Sound Card
- Altec Lansing ACS22 Speakers
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$999

Pentium III Processor 450MHz \$959
Pentium III Processor 550MHz \$1199
Pentium III Processor 600MHz \$1399

AXISORION100M DVD

- Intel® Pentium® III Processor **550MHz**
- **128MB** 100MHz SDRAM
- **13.0GB** Ultra DMA Hard Drive
- **6X DVD-ROM** Drive
- 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- ATI All-in-Wonder 128 128-Bit 16MB AGP 3D Graphics Accelerator w/TV Tuner/Video Capture and TV-Out
- Creative Labs Sound Blaster Live! Value 3D Wavetable Sound Card
- Altec Lansing ACS44 Speakers with Subwoofer
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$1499

Pentium III Processor 450MHz \$1259
Pentium III Processor 500MHz \$1299
Pentium III Processor 600MHz \$1699

AXISORION100A DVD

- Intel® Pentium® III Processor **600MHz**
- **256MB** 100MHz SDRAM
- **18.0GB** Ultra DMA Hard Drive, 7200RPM
- **6X DVD-ROM** Drive
- 512K L2 Cache
- 1.44MB 3.5" Floppy Drive
- Diamond Viper V770 RIVA TNT-2 128-Bit 32MB AGP 3D Graphics Accelerator
- Creative Labs Sound Blaster Live! Value 3D Wavetable Sound Card
- Creative Labs Cambridge SoundWorks FourPointSumund 1000 4-Piece Speakers with Subwoofer
- 56K V.90 PCI Voice/Data/Fax Modem
- Microsoft Windows 98, 2nd Edition
- 104 Keyboard, Microsoft Intellimouse
- 3 Year Parts & Labor Warranty
- 1 Year On-Site Service, Lifetime Toll Free 24/7 Tech Support
- Year 2000 Compliant

\$1899

Pentium III Processor 450MHz \$1459
Pentium III Processor 500MHz \$1499
Pentium III Processor 550MHz \$1699

AXIS
SYSTEMS

call Toll-Free

1-800-378-9014

Customize your system at
www.axissys.com

Business Hours:

Sales: Mon-Fri, 6am-7pm PST,
Sat, 9am-5pm PST.

Support: 24Hours/7 Days

1134 N. Gilbert Street
Anaheim, CA 92801

©1999 Axis Systems Inc. Pictures may differ from actual products. Prices and specifications are subject to change without notice. All trademarks & logos are registered to their respective owners.
Not responsible for any typographical errors.

TOP 10 PRINTERS

	SMALL-BUSINESS/HOME LASER	Street price (7/28/99)	Overall rating	Speed for plain text/full-page graphics (ppm)	Print quality for text/graphics	Comments	Product info number
1	 Xerox DocuPrint P12 800/832-6979 www.xerox.com	\$499	85	9.2/2.9	Excellent/ Good	 FEATURES: Rated 12 ppm. Standard 2MB of RAM, 600-by-600-dpi maximum resolution, 330 sheets input, 250 output. SUMMARY: A \$100 price cut makes this high-quality model our new Best Buy. Its quick speeds, strong output (especially on text), and three-year warranty recommend it for small-office use.	698
2	Minolta PageWorks 8L 888/264-6658 www.minoltaprinters.com	\$379	83	6.5/2.5	Very good/ Adequate	 FEATURES: Rated 8 ppm. Standard 2MB of RAM, 1200-by-1200-dpi maximum resolution, 150 sheets input, 100 output. SUMMARY: This quiet, easy-to-use model has great documentation, but it's a bit pricey considering its somewhat pedestrian text-printing speed. Text output looks handsome, but graphics are dark.	699
3	OkiData OkiPage 10ex 800/654-3282 www.okidata.com	\$399	82	8.6/2.5	Good/ Good	 FEATURES: Rated 10 ppm. Standard 2MB of RAM, 1200-by-600-dpi maximum resolution, 250 sheets input, 100 output. SUMMARY: This quick personal model produces good output overall, though text can look slightly jagged, and you must buy extra RAM to support the highest resolution. Good documentation helps balance sloppy design.	700
4	OkiData OkiPage 6e 800/654-3282 www.okidata.com	\$249	81	5.2/2.4	Good/ Adequate	 FEATURES: Rated 6 ppm. Standard 2MB of RAM, 1200-by-300-dpi maximum resolution, 100 sheets input and output. SUMMARY: Cheapest unit on the chart sports a convenient, simply designed control panel, a modest footprint, and good text quality. Unimpressive graphics output kept it from charting higher.	701
5	Lexmark Optra E310 800/539-6275 www.lexmark.com	\$399	81	6.7/2.6	Good/ Very good	 FEATURES: Rated 8 ppm. Standard 2MB of RAM, 1200-by-1200-dpi maximum resolution, 150 sheets input, 100 output. SUMMARY: This well-designed Lexmark boasts strong paper-handling capabilities and an easy-to-use driver; but it runs slower than you'd expect for its price, and its control panel is not as straightforward as we'd like.	702
CORPORATE LASER							
1	 NEC SuperScript 1800 800/632-4636 www.nectech.com (NEW)	\$799	87	12.6/3.4	Excellent/ Good	FEATURES: Rated 17 ppm. Standard 12MB of RAM, 1200-by-1200-dpi maximum resolution, 600 sheets input, 250 output. SUMMARY: Our speedy new Best Buy features a built-in duplex, an easy-to-use control panel, flawless text printing, and a very attractive price. Strong documentation and no-hassle setup increase its appeal.	703
2	Lexmark Optra S 1855 800/539-6275 www.lexmark.com	\$1129	86	13.8/2.8	Very good/ Very good	 FEATURES: Rated 18 ppm. Standard 4MB of RAM, 1200-by-1200-dpi maximum resolution, 350 sheets input, 250 output. SUMMARY: It offers the fastest text printing among corporate models as well as extensive paper-handling options. But its usually strong gray-scale quality can be inconsistent, and its price is the highest on the chart.	704
3	Brother HL-1660e 800/276-7746 www.brother.com	\$899	85	12.3/2.8	Excellent/ Good	 FEATURES: Rated 17 ppm. Standard 8MB of RAM, 1200-by-600-dpi maximum resolution, 650 sheets input, 250 output. SUMMARY: Highlights of this corporate unit include a good price, flawless text printing, and swift speeds. But its baffling documentation and confusing control panel make some chores frustrating.	705
4	 Ricoh Laser AP1400 800/637-4264 www.ricoh-usa.com (NEW)	\$895	84	11.9/3.6	Very good/ Good	 FEATURES: Rated 14 ppm. Standard 8MB of RAM, 1200-by-1200-dpi maximum resolution, 350 sheets input, 250 output. SUMMARY: Text-printing speed isn't bad for the price, and it delivers clean output on both text and graphics. Negatives include unorganized documentation, subpar installation, and a hard-to-insert toner cartridge.	706
5	 Minolta PageWorks 18 888/264-6658 www.minoltaprinters.com (NEW)	\$749	84	11.8/1.6	Very good/ Good	FEATURES: Rated 18 ppm. Standard 4MB of RAM, 1200-by-600-dpi maximum resolution, 250 sheets input and output. SUMMARY: You can't beat this Minolta's price tag, and it produces clean text quickly. But graphics output could be better and quicker. Gray-scale images look grainy and somewhat dark, though nicely detailed.	707
 Best Buy		 Windows 95-certified Plug and Play		All products: 909			



HOW WE TEST The overall rating for both small-business/home and corporate printers is based on print quality (25 percent), price (25 percent), features (15 percent), speed (10 percent), service and support (10 percent), and ease of use (15 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.



A QUICK CORPORATE monochrome laser with duplexer and superior print quality for less than \$800? Sounds unlikely. But that's what you get with the SuperScript 1800 from NEC, this

month's new top-rated corporate model. The SuperScript 1800 turns in good speed numbers on text and graphics, and it features extras you wouldn't expect on a printer under \$1000. Two other sub-\$900 newcomers join the NEC in our corporate line-

up, though neither is quite as fast with text: Ricoh's \$895 Laser AP1400 and Minolta's \$749 PageWorks 18.

While the corporate chart shows plenty of turnover, none of the three small-business/home newcomers we tested this month make that side of the chart. But with the discontinuation of the formerly top-ranked Brother HL-1040, Xerox's enduring DocuPrint P12—down \$100 this month to \$499—takes over the top spot, and the Lexmark Optra E310, which just missed the chart back in July, squeaks into the bottom position. We will test the HL-1040's replacement, the HL-1240, for the January issue.

AFFORDABLE POWER

WE SEARCHED in vain for criticisms to lob at NEC's SuperScript 1800. Its 12.6-page-per-minute text-printing speed would be generous for a \$799 printer even without a built-in duplexer, a capability most printers provide only as a \$300 extra. It prints text perfectly at large and small sizes alike, and does a great job on delicate narrow lines. It's quick on graphics, too—second on the chart for full-page images. Gray scales exhibited good detail.

The NEC also ranks as one of the easiest printers to set up and use—so easy that its clearly written and well-designed manual seems almost unnecessary. The printer comes with 12MB of standard memory—many lasers still have only 4MB—and its

600-sheet paper capacity can be expanded to 1100 sheets with a \$249 option, roughly on a par with other corporate lasers. The SuperScript 1800's case is tightly packed to accommodate the duplexer, so getting your fingers in to clear paper jams might be uncomfortable; but beyond that, NEC has done just about everything right.

Ricoh's Laser AP1400 can't match the NEC's features or ease of use, but it's still a good deal. For \$895, the AP1400 delivers 11.9-ppm text printing, and we were impressed by its clean, crisp text and well-defined lines. At 3.6 ppm, the Laser AP1400 prints full-page graphics quicker than any other Top 10 printer. Gray scales look good, with nice transitions.

Ricoh could have handled a few details better, however. Installing the printer requires digging through folders on the CD-ROM to find the correct driver. Also, inserting the toner cartridge can be awkward, due to a cramped interior.

Minolta's PageWorks 18 delivers good 11.8-ppm text performance for its \$749 price, but prints graphics at a very slow 1.6 ppm, compared to the Ricoh's 3.6 ppm. It produces clean text, and gray-scale images display good detail. Minolta obviously intends it for busy offices—the printer supports two add-on 500-sheet paper trays (\$206 each) and a duplexer (\$359).

The other Ricoh we tested this month—the Laser AP2000—offers screamingly



THE NEW NEC SuperScript 1800 delivers good speed for a corporate laser, as well as built-in duplexing, for just \$799.

fast 15.1-ppm text printing and acceptable 3.4-ppm graphics. But it doesn't make the chart because it targets a specialized market: It supports tabloid-size (11-by-17-inch) paper for \$1295—making it costly for general office use. Still, compared to other tabloid-size printers we've tested recently, it prints quickly for the price.

HOME-OFFICE STASIS

OUR LOOK AT three new printers—Samsung's QwikLaser 6050 and two Xerox models, the DocuPrint P8ex and DocuPrint P1202—reveals that all have flaws.

The \$699 Xerox P1202, for example, costs \$200 more than Xerox's chart-topping P12, yet delivers only slightly better text-printing performance and slightly worse speed on graphics. Both the P1202 and the P12 produce high-quality text output, but the new model's gray-scale graphics look comparatively muddy.

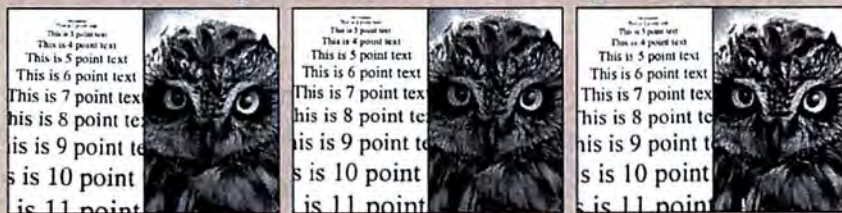
Xerox's other new model, the \$399 P8ex, comes up short on print speed—just 6.4 ppm on text. And when we set the resolution to 1200 dpi, it failed to print our relatively simple test files. To correct that, you'd probably have to boost the memory, which costs extra.

Our final chart-misser, Samsung's QwikLaser 6050, zips through text at 8.7 ppm—fast for its \$449 price tag—but handles graphics at an abysmal 1.7 ppm. An awkward single-sheet auxiliary paper feeder and mediocre graphics quality detract further from the package.

—Dan Littman ■

PRINT QUALITY SAMPLES

NEC Tops on Text and Images Alike



NEC SUPERScript 1800

Text—small and large alike—looked perfect on our Best Buy NEC, which also printed fine lines clearly. Gray-scale images looked good overall, with the slightest banding.

RICOH LASER AP 1400

The Ricoh prints both lines and text well, rendering even the smallest type readable. Gray-scale graphics possess good detail with a bit of difficulty in transition.

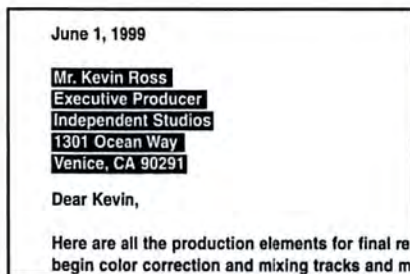
XEROX DOCUPRINT P12

The top-rated Xerox prints text extremely well for a SOHO laser. Lines and gray-scale images both look good, second only to the Lexmark Optra E310.

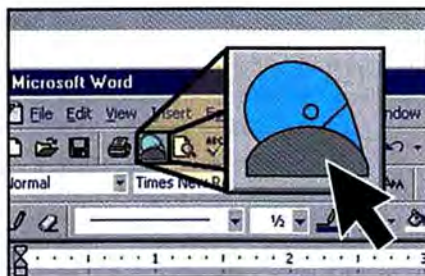
Print labels with your PC in just 2 seconds.



Dimensions:
5" x 7 1/4"



Just highlight



click and



look what you can do.

Faster than you can say, "I need a label," you can now address an envelope, name a file folder, label a name badge or videotape. DYMO® is the first no-brainer PC and Mac label printer. Just pop in the size label you want, highlight the wording and click the DYMO icon. Two seconds later, you've got a label in your hands, formatted just right, with your favorite fonts and graphics.

To order with a money-back guarantee, call 1-888-296-8552 or visit www.dymo.com/info

The fastest name in PC label printers

DYMO®
LabelWriter

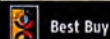
© 1999 Dymo-CoStar Corp. / PCW

CDW: 800-800-4239 Global: 800-8GLOBAL Insight: 800-INSIGHT MicroWarehouse: 800-397-8508 PC Connection: 800-800-1111

Circle 83 on card or go to www.pcworld.com/productinfo

TOP 10 SCANNERS

	SOHO SCANNER	Street price (7/15/99)	Overall rating	Scan quality	Scan speed—B&W at 300 dpi/color at 600 dpi (seconds per page)	Comments	Product info number
1	 Epson Perfection 636 800/463-7766 www.epson.com	\$299	90	Good	17/104	FEATURES: SCSI, 600 by 2400 dpi, 11.3-by-16.8-by-3.5-inch unit, ¹ 9.9 pounds, 8.5-by-11.7-inch scanning area, optional transparency adapter. SUMMARY: Ties for most expensive SOHO scanner, but novice users will appreciate the lifetime support, decent scans, and fine overall performance of this Best Buy.	—
2	Microtek SlimScan C6 800/654-4160 www.microtekusa.com	\$90	89	Very good	36/81	FEATURES: USB, 600 by 1200 dpi, 10.4-by-16.4-by-1.7-inch unit, ¹ 7.7 pounds, 8.5-by-11.7-inch scanning area, no transparency adapter. SUMMARY: This low-cost, lightweight unit is the only CIS (non-CCD) scanner on the chart. Impressive scan quality, choice software, and good support keep it high on the list.	741
3	Microtek ScanMaker X6 800/654-4160 www.microtekusa.com	\$120	87	Good	34/50	FEATURES: USB, 600 by 1200 dpi, 11.5-by-17.3-by-3.2-inch unit, ¹ 11 pounds, 8.5-by-11.7-inch scanning area, optional transparency adapter. SUMMARY: Solid scan quality and overall performance make this model a contender. Strong software bundle and features not found on competing models sweeten the pot.	742
4	HP ScanJet 5200Cse 800/722-6538 www.scanjet.com	\$299	85	Very good	24/80	FEATURES: Parallel and USB, 600 by 1200 dpi, 12-by-19.1-by-4.9-inch unit, ¹ 12.5 pounds, 8.5-by-11.7-inch scanning area, optional 35mm slide adapter. SUMMARY: Versatile but pricey scanner delivers admirable scan quality, includes useful software, and has an easy-to-use design.	743
5	Acer AcerScan Prisa 620UT  800/379-2237 www.acerperipherals.com	\$149	85	Good	27/112	FEATURES: USB, 600 by 1200 dpi, 12-by-18-by-4-inch unit, ¹ 9.5 pounds, 8.5-by-11.7-inch scanning area, includes transparency adapter. SUMMARY: Beyond good scan quality, this all-purpose device scans transparent and reflective materials. Without a transparency adapter, \$99 AcerScan Prisa U is also a good value.	744
6	Plustek OpticPro 9636T 800/685-8088 www.plustekusa.com	\$139	84	Good	25/201	FEATURES: USB, 600 by 1200 dpi, 11.7-by-16.7-by-3-inch unit, ¹ 7.2 pounds, 8.5-by-11.7-inch scanning area, includes a transparency adapter. SUMMARY: Reasonable price, respectable performance, and solid support make this a fine entry-level scanner, despite slow color scans and mediocre software.	745
7	Pacific Image ScanAce 1236P 310/618-8100 www.scanace.com	\$90	83	Very good	23/160	FEATURES: Parallel, 600 by 1200 dpi, 12-by-17.8-by-3.8-inch unit, ¹ 6.9 pounds, 8.5-by-11.7-inch scanning area, no transparency adapter. SUMMARY: Inexpensive model delivers high-quality output and comes with generous software bundle, but scan speed, general features, and support are mediocre.	746
CORPORATE SCANNER							
1	 UMAX Astra 2400S 800/562-0311 www.umax.com	\$299	90	Good	12/67	FEATURES: SCSI, 600 by 2400 dpi, 13.2-by-23.3-by-5.9-inch unit, ¹ 14.6 pounds, 8.5-by-14-inch scanning area, optional transparency adapter. SUMMARY: Fast performance and outstanding support earn this legal-document-capable unit a Best Buy. Scan quality, software, and price are other strong points.	747
2	HP ScanJet 6200C 800/722-6538 www.scanjet.com	\$399	89	Outstanding	25/63	FEATURES: SCSI and USB, 600 by 1200 dpi, 12.3-by-19.6-by-4.7-inch unit, ¹ 12.8 pounds, 8.5-by-11.7-inch scanning area, includes 35mm slide adapter. SUMMARY: Excellent fidelity and speedy output make this reasonably priced scanner a worthwhile choice for offices that scan mainly text.	748
3	Agfa DuoScan T1200 888/281-2302 www.agfahome.com	\$699	86	Good	26/90	FEATURES: SCSI, 600 by 1200 dpi, 15.5-by-22.4-by-6.3-inch unit, ¹ 38 pounds, 8.5-by-14-inch scanning area, integrated transparency adapter. SUMMARY: Good scan quality and speed plus the ability to scan photos and transparencies make this versatile but pricey model worth a look for corporate graphics users.	749



Best Buy

For reviews of this month's new scanners, visit www.pcworld.com/oct99/110scanners.

All products: 912

HOW WE TEST All scanners are tested with default settings under Windows 98 on a Dell Dimension V333 (Pentium II-333) PC with 64MB of RAM, using each scanner's bundled software. Overall score is based on scanned image quality (28 percent), scanning speed (25 percent), ease of use (17 percent), features (15 percent), support (10 percent), and price (5 percent). Speed tests are timed from the start of scanning until cursor control is regained. Data based on tests designed and conducted by the PC World Test Center.

¹ Dimensions are listed in the following order: width, depth, and height.



PC WORLD ONLINE'S popular Top 10 Scanners debuts in print this month—just in time to say good-bye to parallel-port scanners. More than half the units ranked here can connect to a com-

puter's USB port. The \$149 AcerScan Prisa 620UT, a chart newcomer, comes with transparency and slide adapters and makes a good choice for small-office and home users. Meanwhile, SCSI's reign over the corporate market remains strong. ■



**JUST
THINK OF IT.**

Call it a productivity
machine if you want,
ELSA's new **ERAZOR III**
graphic accelerator card can

help you create an avalanche of
business materials in a fraction of the time.
PowerPoint™ presentations, charts, spreadsheets,
reports — speed through all of them with
ERAZOR III. The secret is the astonishing
technology of ELSA combined with the
hyperfast NVIDIA  processor.
Stop waiting, find us on the web or call
800-272-ELSA for a dealer near you.

ELSA

888.560.ELSA or www.elsa.com/AMERICA

TOP 10 MONITORS

	17-INCH MONITOR	Month tested	Street price (7/21/99)	Overall rating	Quality of text/graphics	Comments	Product info number
1	 IBM P72 800/426-7255 ext. 4753 www.ibm.com/options	Oct 98	\$459	91	Excellent/ Excellent	FEATURES: 15.7-inch viewable area, .25mm stripe pitch Trinitron tube, up to 85-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: Contemporary style, gorgeous colors, and generous tech support justify this unit's higher-than-average price.	-
2	 ViewSonic PT775 800/888-6583 www.viewsonic.com	Oct 98	\$398	90	Very good/ Excellent	FEATURES: 15.9-inch viewable area, .25mm stripe pitch Diamondtron tube, up to 117-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: \$41 cut helps low-cost professional model maintain Best Buy status. Lush, lively colors well-suited to graphics work.	677
3	Samsung SyncMaster 700p Plus 800/726-7864 www.samsung-monitor.com	Oct 98	\$389	89	Very good/ Very good	FEATURES: 15.6-inch viewable area, .26mm dot pitch tube, up to 120-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: Competitive pricing helps handsome model keep high ranking; bright colors and high refresh rate are also pluses. Controls have cryptic icons.	678
4	Optique V73 800/843-6784 www.optique.com	Apr 99	\$289	88	Very good/ Excellent	FEATURES: 16-inch viewable area, .26mm dot pitch tube, up to 85-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 16-hour daily toll-free support (Sundays excluded). SUMMARY: Cheapest unit here sheds another \$6. Display shows rich colors, but controls require tedious button pressing.	679
5	Iiyama VisionMaster Pro 410 800/394-4335 www.iiyama.com	Aug 99	\$429	87	Very good/ Excellent	FEATURES: 15.7-inch viewable area, .25mm stripe pitch Diamondtron NF tube, up to 115-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 12-hour weekday toll-free support. SUMMARY: Drops \$40; features newest-generation flat CRT, nice colors, otherwise generic design. Short support hours.	680
6	Sony CPD-220GS 800/352-7669 www.sony.com/displays	Jun 99	\$449	86	Very good/ Excellent	FEATURES: 15.6-inch viewable area, .25mm stripe pitch Trinitron tube, up to 85-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour weekday toll-free support. SUMMARY: Bold colors and sharp text compensate for above-average price. Controls are easy to learn and navigate.	681
7	DecaView PA 380 888/707-6688 www.deca.com	Aug 99	\$469	86	Very good/ Excellent	FEATURES: 15.7-inch viewable area, .25mm stripe pitch Diamondtron tube, up to 85-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 9-hour weekday toll-free support. SUMMARY: Big \$130 price drop; offers sharp text and nicely saturated colors. Tech support hours on the short side.	682
8	Mitsubishi Diamond Plus 71 800/843-2515 www.mitsubishi-display.com	Aug 99	\$369	86	Very good/ Very good	FEATURES: 15.9-inch viewable area, .25mm stripe pitch Diamondtron tube, up to 85-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 12-hour daily toll-free support. SUMMARY: Low price, finely balanced picture quality. Features retractable control panel and easily navigable controls.	683
9	AcerView 79g 800/379-2237 ext. 125 www.acerperipherals.com	Oct 98	\$429	86	Very good/ Excellent	FEATURES: 15.9-inch viewable area, .25mm stripe pitch Diamondtron tube, up to 110-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: Drops one notch, but looks stately and displays lush colors. Icons for on-screen controls are crudely designed.	684
10	NEC MultiSync E750 800/632-4636 www.nectech.com	Apr 99	\$449	85	Very good/ Very good	FEATURES: 15.9-inch viewable area, .25mm slot pitch ChromaClear tube, up to 114-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 11.5-hour weekday toll-free support. SUMMARY: Features space-saving design and easy on-screen controls, but cheaper models offer better image quality.	685



Best Buy

For reviews of products that didn't make the chart, visit www.pcworld.com/t10monitors.

All products: 907



TEST HOW WE TEST Ten judges rate a monitor's text and graphics quality. We evaluate each unit on how well it displays typical business letters, a newsletter, spreadsheets, Web pages, and scanned images. The overall rating is based on text and graphics quality (25 percent each), features and ease of use (25 percent), price (20 percent), and service and support (5 percent). The best possible overall rating is 100. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

¹ Highest refresh rate at 1024 by 768 resolution. ² Plug and Play monitors and graphics cards can communicate bidirectionally. However, Windows 95 does not fully utilize monitor Plug and Play.



OLD NEWS IS GOOD NEWS. Our chart remains nearly unchanged from our last 17-inch Top 10 in August. Prices continue to drop, though less steeply than in past months. DecaView's PA 380

boasts the biggest price cut—\$130—raising it to seventh place. Optique's V73, a bargain at \$289, is a good choice if you're on a budget and need solid graphics. New models from CLR, Compaq, Hansol, and Nokia failed to crack the chart.

COMPUTER SHOPPER'S BEST



TransPort NX 366

\$76/mo.

Business Lease 48 mos.[™]

\$2499

Factory Direct Price

- Intel® Pentium® II processor 366MHZ
- 64MB SDRAM
- 6.4GB hard drive* (removeable)
- 15.0" XGA TFT display
- 8MB AGP graphics accelerator
- 24X var.^o speed CD-ROM drive
- 3.5" floppy drive (dedicated bay)
- 56K 3Com Eclipse Lite modem card
- Microsoft® Windows® 98
- Microsoft Office 2000 SBE
- Norton AntiVirus
- 1-year free^Δ training at Micron U online

The Micron™ TransPort® NX notebook combines the industry's best available technologies to deliver the highest performance notebook computer, ideal for anyone looking for a notebook PC with the features of a high-end desktop system. The TransPort NX includes Intel's most powerful mobile processor, a large 15-inch LCD display, high-capacity hard drive, high-performance graphics system, up to 384MB of RAM and a variety of storage/media options like DVD, CD-ROM, LS-120, Zip or floppy disk drives. With these features, power-users can work with sophisticated graphics and video applications, view feature-length movies and even play high-end 3D games.

ORDER DIRECT 1-888-209-8020

BUY IS NOW YOUR BEST BUY.

"The Micron TransPort NX hits the sweet spot for users looking for performance and upgradability."

—Computer Shopper, June 1999

Model Name	TransPort TREK ² C400	TransPort TREK ² C400	TransPort NX 400
Processor	Intel Celeron™ processor 400MHz	Intel Celeron processor 400MHz	Intel Pentium II processor 400MHz
RAM	32MB SDRAM	64MB SDRAM	128MB SDRAM
Hard Drive	4.3GB hard drive* (removeable)	6.4GB hard drive* (removeable)	14GB hard drive* (removeable)
Monitor	12.1" SVGA TFT display	14.1" XGA TFT display	15.0" XGA TFT display
Graphics	8MB AGP graphics accelerator	8MB AGP graphics accelerator	8MB AGP graphics accelerator
CD-ROM	24X var. ^o speed CD-ROM drive	24X var. ^o speed CD-ROM drive	2X var. speed DVD-ROM drive
Extra Storage	3.5" floppy disk drive	3.5" floppy disk drive	SuperDisk LS 120
Communications	—	56K 3Com Eclipse Lite modem	56K 3Com Eclipse Lite modem
Software	Microsoft Windows 98 MS Office 2000 SBE Norton AntiVirus	Microsoft Windows 98 MS Office 2000 SBE Norton AntiVirus	Microsoft Windows 98 MS Office 2000 SBE Norton AntiVirus
Micron U	1-year free ^a training online	1-year free ^a training online	1-year free ^a training online
Factory Direct Price	\$55/mo. \$1799 Business Lease 48 mos. ^{**}	\$70/mo. \$2299 Business Lease 48 mos. ^{**}	\$103/mo. \$3399 Business Lease 48 mos. ^{**}



©1999 Micron PC, Inc. All rights reserved. Micron Electronics is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice; prices do not include shipping and handling and any applicable taxes. Seller's return policy does not include return freight and original shipping/handling charges, and all return and warranty periods begin from the date a product is shipped, not when it arrived. A restocking fee may be charged upon the return of a product. All sales are controlled by Seller's current terms and conditions of sale. On-site service is provided at the sole discretion of Micron Computer Services, Inc. A diagnostic determination for on-site service must be made by a service technician prior to the provision of on-site service. On-site service is provided by a third-party service provider under a separate service contract between you and the service provider. Intel, the Intel Inside Logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft, Windows and the Windows logo are registered trademarks of Microsoft Corporation. Product names of Micron products are trademarks or registered trademarks of Micron PC, Inc. Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies. Note: Advertised configurations may differ from award-winning configurations. *All hard drive sizes calculated with 1GB equal to 1 billion bytes. ^oOne year free with purchase of new Micron desktop or notebook system. Free subscription does not include books or software. ^oCD-ROM speeds: 40X max./17X min.; 32X max./17X min. ^{**}Micron Leasing arranged by an independent entity to qualified commercial customers. Above lease payments based on 48 months, FMV terms and do not include taxes, fees or shipping charges. Leasing subject to credit approval and availability. Above lease terms subject to change without notice or obligation.

SHOP ONLINE WWW.MICRONPC.COM

600MHz Pentium III[®] From Xi[®]



The Xi[®] MTower[™] is the winner of several magazine awards, as best performing and best value workstation. With the newest Xeon 550 MHz & Pentium III 600MHz Intel processor with L2 cache up to 2MB, 100 MHz BUS and 2GB 100 MHz SDRAM expandability, Xi Computers delivers top workstation 3D performance at an incredible price. The search is over!



The Xi NetRAIDER[™] has been defined by LANtimes magazine the "hands down winner" of Windows NT Servers, receiving the prestigious award of THE BEST OF LANTIMES (Dec.1997). Our newest model, with 550MHz Xeon, 1960 cached RAID 3-Channel Ultra2wideSCSI controller, has been rated by PC-WORLD (Sept.1999) "first place in overall performance" & delivers the most powerful and reliable Windows NT & LINUX server performance & value on the market. With a tool-free secure-locked case, hot-pluggable redundant power supply, up to 14 hot-swappable drive bays and up to 3 years on-site service with 24/7 tech support, the Xi NetRAIDER is the server of choice for your network and website applications.

Top 3D & Network Performance!

Xi Computer Corporation has been on the forefront of dual processor technology since 1994. Using the multithreaded video cards drivers the Xi dual processor architecture delivers the top level of performance, even for non multithreaded CAD packages like AutoCAD[®] 2000. Just rated by CADalyst as the fastest 3DStudio[®] MAX Workstation, by PC-WORLD the fastest SQL & NT[®] FileServer & by Business Week the fastest 600MHz PC Desktop, Xi is the performance leader!

BYTE BEST
TOP 100 NT WORKSTATIONS

THE BEST OF LANTIMES



Xi support Linux

CADALYST LABS

★★★★★
HIGHLY RECOMMENDED

1997 Editors' Choice Awards

CADENCE

PC WORLD

TOP 20

BUDGET DESKTOPS



pentium III
xeon



ViewSonic

Xi MTower SP

- Intel[®] Pentium[®] III Processor, SP
- 512KB L2 Write Back Cache
- 128MB SDRAM, 3B Logitech
- Matrox G200 8MB AGP
- 4.3GB HD 9ms.Ultra ATA 33MB
- 17"(16vs) Optquest.27dp1280NI
- Xi 5Bays M-Tower 145W UL
- MS Windows[®] 98, 44xCD-ROM

Xi MTower DP

- Intel Pentium III/Xeon. Dual cap.
- Intel 440BX/GX, 512KB Cache
- 256MB SDRAM, 3B Logitech
- OXYGEN 3DL. VX1 32MB AGP
- 9.1GB 8ms 7200RPM ATA66MB
- 19"(18vs)Optquest.26dp 1600NI
- Xi 7Bays Mid-Tower 300W UL
- MS Win. NT 4.0, 44xCD-ROM

Xi NetRAIDER

- Intel PentiumIII/Xeon. Dual cap.
- Intel 440GX, 512KB Cache
- 128MB ECC SDRAM exp. 2GB
- Adaptec RAIDport w/16MB Cache
- 27/18GB U2WSCSI RAIDMod.0/5
- 14"(13vs)Mon.Dual300WHotSwap
- Xi 14Bays Tower w/Secure Lock
- MS NT 4.0 Server, 44xCD-ROM

450MHz Pentium III \$ 1,149 500MHz Pentium III \$ 2,299 450MHz Pentium III \$ 4,699
60MHz Pentium III \$ 1,799 550MHz Xeon \$ 3,249 550MHz Xeon \$ 6,949

3D Video Upg.(*): OXYGEN GVX1 \$ 529, Diamond Fire GL-1 \$ 699
Monitor Upg.: Viewsonic G810 21" .25dp \$ 599, P815 21" .25 \$ 739
FREE ONE YEAR INTERNET ACCESS WITH SYSTEM PURCHASE!

Xi Certified for AutoCAD[®] 2000, 3D Studio[®] MAX/VIZ, LightWave[®] 3D, Softimage[®] 3D & Pro/E. We custom configure each Xi system from 100+options to match your application and your budget. Business Lease from \$ 59/month.

30 Days Money-Back Guarantee - 3 years HW System Warranty available - 1 year & 3 Years On Site Service available - 1 year Overnight Parts Replacement Service - 24H/7Days Toll-Free HWTech Support - Next Day Shipping on selected configurations



Intl:(949)498-0858 Fax:(949)492-6571

www.xicomputer.com

Call Toll Free: 800-432-0486

Intel, Pentium, and the Intel Inside logo are registered trademarks and Xeon are trademarks of Intel Corporation. MS, Windows and Windows NT, are registered trademarks of Microsoft Corporation. Xi and the Xi logo are registered trademarks and MTower, NetRAIDER, NetClient are trademarks of Xi Computer Corp. Prices do not include shipping and are subject to change without notice. 30 days money back does not include software and shipping both ways. On-Site Service is optional and cannot be available in some remote areas. For more details about Xi warranty and service call or write to Xi Computer Corp. 980 Negocio, San Clemente, CA 92673, USA. Mon & Video upg. price fr V95 & VX1. Free internet access is 10H/mo. via 949 area code call. Long distance toll may apply. Valid with new Xi system purchase only. Not responsible for typos. Copyright (c) 1999 Xi Corp.

TOP 10 GRAPHICS BOARDS

	AGP BOARD	Month tested	Street price (8/5/99)	Overall rating	Mixed-media business rating	3D rating	Features rating	Comments	Product info number
1	 Creative Labs Graphics Blaster RIVA TNT 800/998-1000 www.creative.com	Feb 99	\$100	91	Good	Excellent	Good	FEATURES: 16MB of SDRAM, 250-MHz RAMDAC, NVidia RIVA TNT chip, no bundled applications. SUMMARY: Excellent 3D performance and a top-notch color-calibration utility make this card a great value for business users and gamers alike.	728
2	Matrox Millennium G400 800/361-1408 www.matrox.com/mga	Sept 99	\$199	90	Excellent	Excellent	Excellent	FEATURES: 32MB of SGRAM, 300-MHz RAMDAC, Matrox G400 chip, bundled image editor, 3D modeling tool, and 3D game. SUMMARY: Speedy card lets you run apps simultaneously on two displays. Moderately fast G200 AGP sibling costs \$129.	729
3	ATI Xpert 128 905/882-2600 www.atl.com	Aug 99	\$99	89	Good	Good	Excellent	FEATURES: 16MB of SDRAM, 250-MHz RAMDAC, ATI Rage 128GL chip, bundled graphics plug-in and 3D games. SUMMARY: Lowest-priced AGP board here makes an attractive, affordable choice for those who use standard office apps and play games.	730
4	3dfx Voodoo3 3000 888/234-4334 www.3dfx.com	July 99	\$180	88	Excellent	Excellent	Good	FEATURES: 16MB of SDRAM, 350-MHz RAMDAC, 3dfx Voodoo3 chip, bundled 3D games. SUMMARY: Speediest 3D performance among ranked cards; lets you view video on TV. No 32-bit rendering, AGP textures, or AGP pipelining (all affect image quality).	731
5	ATI Rage Fury 905/882-2600 www.atl.com	Aug 99	\$159	88	Good	Good	Excellent	FEATURES: 32MB of SDRAM, 250-MHz RAMDAC, ATI Rage 128GL chip, bundled 3D games. SUMMARY: Affordable, very speedy card is suitable for basic graphics tasks and gaming, but ATI is still revising drivers to mend Director bug.	732
6	Guillemot Maxi Gamer Xentor 877/484-5536 www.guillemot.com	Sept 99	\$130	88	Average	Good	Excellent	FEATURES: 16MB of SDRAM, 300-MHz RAMDAC, NVidia RIVA TNT2 chip, bundled 3D games. SUMMARY: Swift 3D plus video-out port for watching games on TV make this board a terrific choice for gamers, but it ran sluggishly in PowerPoint tests.	733
7	Creative Labs 3D Blaster RIVA TNT2 Ultra 800/998-1000 www.creative.com	Sept 99	\$230	87	Good	Good	Good	FEATURES: 32MB of SDRAM, 300-MHz RAMDAC, NVidia RIVA TNT2 Ultra chip, no bundled applications. SUMMARY: Delivers solid performance in office apps and games, but it's slower than some competitors and has the highest price on the chart.	734
PCI BOARD									
1	 3dfx Voodoo3 2000 888/234-4334 www.3dfx.com	NEW	\$130	94	Good	Excellent	Good	FEATURES: 16MB of SDRAM, 300-MHz RAMDAC, 3dfx Voodoo3 chip, no bundled applications. SUMMARY: Top upgrade choice for avid gamers is affordably priced and has the fastest 3D performance among the PCI cards we've tested.	735
2	Creative Labs 3D Blaster Banshee 800/998-1000 www.creative.com	Mar 99	\$60	93	Good	Good	Good	FEATURES: 16MB of SDRAM, 250-MHz RAMDAC, 3dfx Voodoo Banshee chip, no bundled apps. SUMMARY: Cheapest card here (thanks to \$20 price cut) provides speedy 3D and comes with a utility for color-calibrating your PC, monitor, and printer.	736
3	Matrox Millennium G200 SD PCI 800/361-1408 www.matrox.com/mga	Feb 99	\$119	86	Good	Good	Good	FEATURES: 8MB of SGRAM, 250-MHz RAMDAC, MGA-G200 chip, bundled 3D modeling tool, image editing application, and 3D game. SUMMARY: Performs well in both business graphics and 3D games and offers useful software extras.	737



Best Buy

For reviews of other new graphics cards that we tested this month, visit www.pcworld.com/t10graphics.

All products: 911



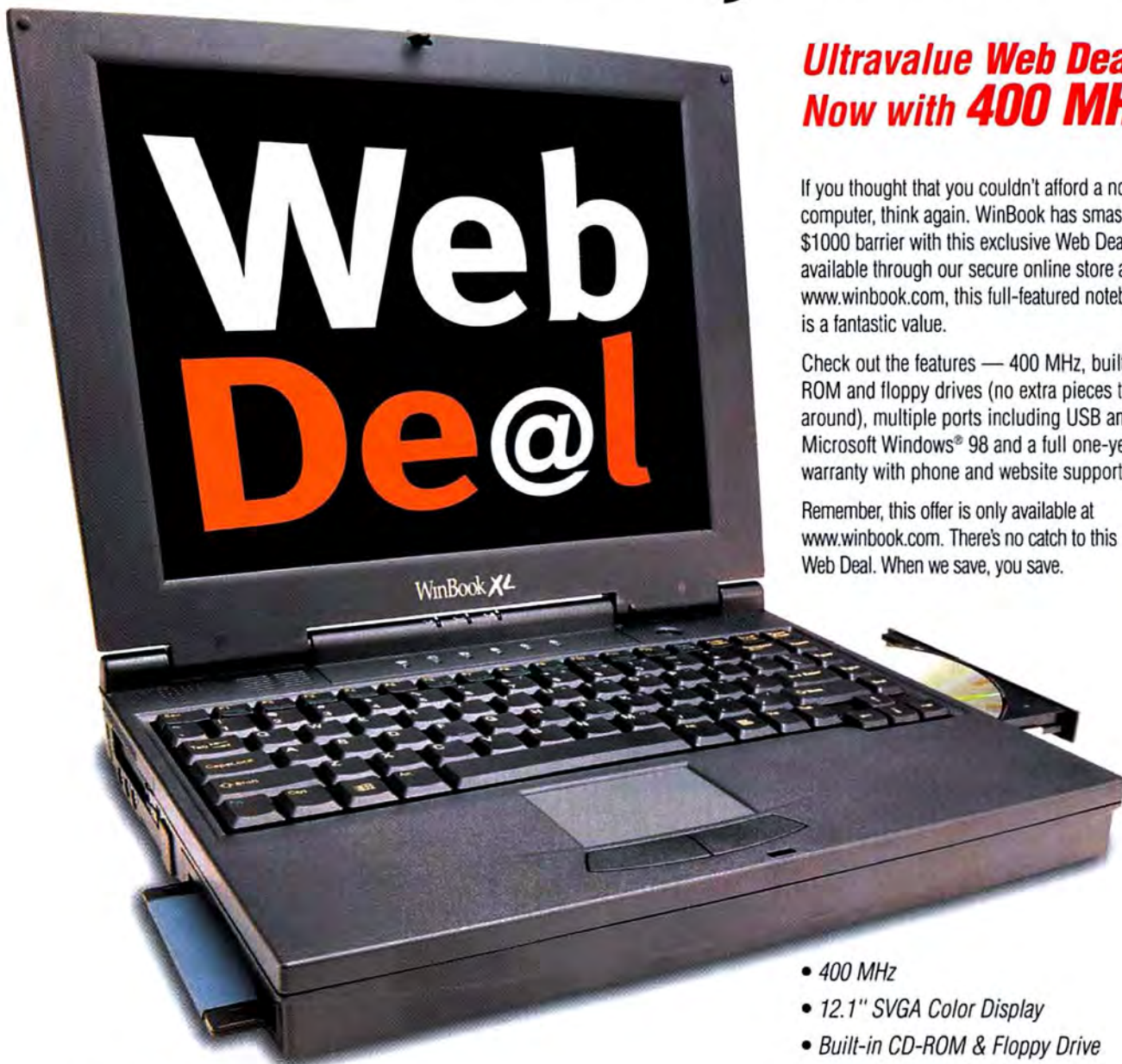
HOW WE TEST We test boards under Windows 95. Business tests include PC WorldBench 98, a PowerPoint test, and a Macromedia Director script. Our 3D score is based on four games, each evaluated on frame rate and image quality. For AGP cards we add a texturing test using Caligari's TrueSpace3. We tested AGP boards in an NEC Direction 333 with a PII-333 and 64MB of RAM. We tested PCI boards in a Micron Millennia MME PC with a Pentium MMX-233 and 32MB of RAM. Overall rating is based on performance (AGP 55 percent, PCI 50 percent), features (25 percent), price (AGP 10 percent, PCI 15 percent), and support policies (10 percent). For all scores, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.



THIS MONTH'S CHART gets a face-lift: We enlarge our AGP list to seven boards and pare the PCI chart to three, reflecting AGP's growing popularity. Creative Labs' speedy Graphics Blaster

RIVA TNT looks like a million bucks as the AGP Best Buy, while ATI's Rage Fury and another Creative model—the 3D Blaster RIVA TNT2 Ultra—join the club. On the PCI side, 3dfx's fast, affordable new Voodoo3 2000 tucks away the number one slot. ■

400MHz, \$999



Ultravalue Web Deal. Now with 400 MHz!

If you thought that you couldn't afford a notebook computer, think again. WinBook has smashed the \$1000 barrier with this exclusive Web Deal. Only available through our secure online store at www.winbook.com, this full-featured notebook is a fantastic value.

Check out the features — 400 MHz, built-in CD-ROM and floppy drives (no extra pieces to carry around), multiple ports including USB and infrared, Microsoft Windows® 98 and a full one-year limited warranty with phone and website support.

Remember, this offer is only available at www.winbook.com. There's no catch to this Web Deal. When we save, you save.

**Winner of over
190 awards.**

Visit our website
www.winbook.com for
more award information.

**Get your *Web Deal*
today.** Visit us online and save
at www.winbook.com.

- 400 MHz
- 12.1" SVGA Color Display
- Built-in CD-ROM & Floppy Drive
- Fast Ultra DMA Hard Drive
- Microsoft Windows® 98 pre-installed

Quantities may be limited.

*Current 400 XL Web Deal available to order
by phone at 800-360-6659 for \$1199.*

**Order Online and save at:
www.winbook.com**

Prices and specifications valid in U.S. only and subject to change without notice. All purchases are subject to availability. Prices do not include shipping or any applicable taxes. For a complete copy of Guarantees and Limited Warranties, contact WinBook Computer Corporation or our website at www.winbook.com/webcomm/warranty.html.

©1999 WinBook Computer Corporation. All rights reserved. WinBook is a registered trademark of Micro Electronics, Inc. All other trademarks and registered trademarks are property of their respective corporations.

WinBook®

Critically Proven.

Circle 254 on card or go to www.pcworld.com/productinfo

TOP 10 MODEMS

	INTERNAL V.90 MODEM	Month tested	Street price (7/14/99)	Overall rating	56-kbps downloads/ 33.6-kbps transfers (min:sec per MB)	Comments	Product info number
1	 Zoom FaxModem 56K ISA Dualmode 800/631-3116 www.zoom.com	Sept 99	\$69	82	3:38/5:54	FEATURES: Supports K56flex, ISA card, Lucent chip set, V.80 videoconferencing, distinctive ring, voice mail, Caller ID, Communicate software. SUMMARY: \$10 price drop since last month keeps this modem at the top of the chart. Backed by a seven-year parts and labor warranty, with 15 hours of phone support daily.	686
2	MaxTech XPVS56P/RS NetPace Pro Internal PCI Data/Voice/Fax Speakerphone Modem 800/936-7629 www.maxtech.com	(NEW)	\$35	81	3:12/5:58	FEATURES: Supports K56flex, PCI card, Rockwell chip set, V.80 videoconferencing, voice mail, speakerphone, VoiceView, Caller ID, SuperVoice software. SUMMARY: Fast, inexpensive chart newbie. Five-year warranty and 10-hour daily tech support fall short of Zoom's policies. Lacks printed manuals and quick setup guide.	687
3	3Com U.S. Robotics Winmodem PCI 800/342-5877 www.3com.com	Sept 99	\$80	81	3:37/5:55	FEATURES: Supports x2, PCI card, USB/T1 chip set, V.80 videoconferencing, distinctive ring, Caller ID, RapidComm software. SUMMARY: Good performer short on voice features. Modem comes with a lifetime warranty, but 3Com offers tech support just 10 hours per weekday—and the call will cost you.	688
4	MaxTech XPV56P NetPacer V.90 Internal PCI Data/Voice/Fax Modem 800/936-7629 www.maxtech.com	June 99	\$38	80	4:04/6:01	FEATURES: Supports K56flex, PCI card, Lucent chip set, V.80 videoconferencing, voice mail, speakerphone, Caller ID, SuperVoice software. SUMMARY: Affordable modem carries a five-year warranty. Performs adequately at 56-kbps but runs slowest of the bunch at 33.6-kbps. Low connect rate to Ascend dial-up server.	689
5	Digicom Systems Modem Blaster Flash 56K PCI 408/719-5180 www.digicomsys.com	Aug 99	\$49	80	3:43/5:40	FEATURES: Supports K56flex, PCI card, Rockwell chip set, MNP-10 error control, V.80 videoconferencing, distinctive ring, voice mail, speakerphone, ASVD, Caller ID, QuickLink Message Center III software. SUMMARY: Full-featured unit has competitive price and download rates. Backed by 14-hour daily support and three-year warranty.	690
6	Zoom FaxModem 56K PCI Dualmode 800/631-3116 www.zoom.com	Jan 99	\$64	79	4:16/5:40	FEATURES: Supports K56flex, PCI card, Rockwell chip set, MNP-10EC, V.80 videoconferencing, distinctive ring, voice mail, Communicate software. SUMMARY: Average price. Offers good voice features and comes backed by long support hours. Runs slowest on the chart for 56-kbps downloads but does passably with 33.6-kbps.	691
7	Viking V.90 56K Speakerphone ISA Modem 800/338-2361 www.vikingcomponents.com	Sept 99	\$109	78	3:51/5:42	FEATURES: Supports K56flex, ISA card, Rockwell chip set, MNP-10EC, V.80 videoconferencing, voice mail, speakerphone, Caller ID, QuickLink Message Center III. SUMMARY: Priciest internal modem on the chart delivers only adequate performance but is loaded with features. Backed by 24-hour toll-free phone help and a five-year warranty.	692
EXTERNAL V.90 MODEM							
1	 Diamond Multimedia SupraExpress 56e 800/468-5846 www.diamondmm.com	Feb 99	\$100	81	3:23/5:40	FEATURES: Supports K56flex, Rockwell chip set, V.80 videoconferencing, distinctive ring, voice mail, Caller ID, permanently attached serial cable, FaxTalk Communicator software. SUMMARY: Fastest external modem on the chart. Small and portable, offers easy installation, and is backed by long support hours.	693
2	Boca 56K Tidalwave External Data/Fax Modem 561/997-6227 www.bocaresearch.com	(NEW)	\$99	80	3:33/5:43	FEATURES: Supports K56Flex, Rockwell chip set, MNP-10, serial cable, V.80 videoconferencing, distinctive ring, voice mail, ASVD, DSVD, Caller ID, QuickLink Message Center III software. SUMMARY: Average performer. Includes HotOffice and Smith Micro VideoLink Mail software plus a five-year warranty, but no toll-free support.	694
3	Viking 56K USB Modem 800/338-2361 www.vikingcomponents.com	Aug 99	\$120	77	3:40/5:43	FEATURES: Supports K56flex, Rockwell chip set, MNP-10EC, V.80 videoconferencing, USB cable, distinctive ring, Caller ID, QuickLink Message Center III software. SUMMARY: Stylish but bulky shark-fin shape. Average 56-kbps downloads, around-the-clock support, and simple USB setup make this a solid choice for home users.	695



Best Buy

For reviews of products that didn't make the chart, visit www.pcworld.com/t10modems.

All products: 908



TEST HOW WE TEST We test V.90 (56-kbps) and V.34 (33.6-kbps) performance over a Telecomm Analysis Systems simulated phone network. We connect each modem to two common Internet service provider modems—Ascend's Max 6000 and 3Com's Total Control. Using each ISP modem, we perform two tests. In the Network Model Coverage test, we send a .zip file over several different line conditions. In the File Type test, we send a mix of four files—graphics, text, program, and compressed—over one line condition. We average the results for the two ISP modems to calculate NMC and FT scores, which make up, respectively, 60 and 40 percent of the total performance score. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.



A \$10 PRICE DROP ensures that Zoom FaxModem remains king of the internal modems for a second month running, while MaxTech occupies both second and fourth place with its remarkably

affordable and high-performance internal offerings. The external modems' sweet spot stays close to \$100 this month. Boca's 56K Tidalwave External muscles into second place with its extensive warranty policy and software bundle.

Major breakthrough in faster system performance!



NEW: DISKEEPER 4.0 – Defragments Paging Files for Unparalleled System Speed!

Files are commonly shattered into hundreds or even thousands of fragments. A file that has 200 fragments takes two hundred times longer to access. A file with 200,000 fragments takes 200,000 times longer and so on—slowing your system to a fraction of its potential speed. DISKEEPER for Windows NT has consistently set the standard for eliminating this primary performance bottleneck. And now, *new* DISKEEPER 4.0 provides exclusive technology that allows you to defragment the Paging File, creating the most complete, cutting-edge defragmentation solution available anywhere!

- **NEW!** Defragments the PAGING FILE at boot time.
- **EXCLUSIVE!** Consolidates and defragments Directory Files.
- **EXCLUSIVE!** Remotely schedules, monitors and controls defragmentation across the network.
- **EXCLUSIVE!** "Set It and Forget It"™ auto-scheduling options.
- Group scheduling for groups of Windows NT systems—or even entire domains with just a few clicks. (Server version)
- 100% safe and completely compatible with your existing Windows NT 4.0 system.

Stop WAITING and get performance gains you can actually see! Download a trialware copy of the new DISKEEPER 4.0.

Volume licensing and Government/Education discounts available. For best pricing call your local Reseller or call 1-800-829-6468.

Why BUY a non-network defragmenter for Windows NT 4.0 when **DISKEEPER LITE** does a better job for FREE!

Download: www.diskeeper.com



Executive Software
www.execsoft.com

701 N. Brand Boulevard, 6th Floor
Glendale, CA 91203-1242

© 1998 Executive Software International, Inc. All Rights Reserved. DISKEEPER, EXECUTIVE SOFTWARE, the Executive Software logo and "Set It and Forget It" are trademarks owned by Executive Software. Microsoft, BackOffice, the BackOffice logo and Windows NT are trademarks of Microsoft Corporation. *Reproduced by permission of Microsoft Press

"Disk fragmentation can cause performance problems. You should consider running a defragmentation program on a regular basis."

— Microsoft Windows NT Server Resource Guide*



www.diskeeper.com/dkinfo



Circle 84 on card or go to www.pcworld.com/productinfo

ShoppingIn.com is a member of the Price Alliance Network

EXCLUSIVE RELEASE:
All Available OFFLINE on the PCWORLD October Newsstand CD!

Also Available:
OFFLINE on FAMILY PC's New Subscriber CD's!

Join the Network @
Pricealliance.com

Network Sponsors Present: -October Featured Products- Voice Recognition, Notebooks, Graphics Cards...

PC SHOPPING PLANET The Upgrade Specialists

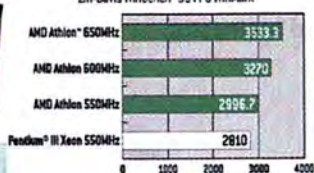


The World's Absolute Performance Solution:

AMD Athlon 550 and ATI Rage Fury 32

AMD Athlon 550 MHZ
FIC SD11 - Athlon- Motherboard
128MB PC100 SDRAM
Western Digital 10.2G udma/66
ATI Rage Fury 32MB w/ DVD
Hitachi DVD Kit 3rd Gen.
Creative Labs Soundblaster Live
Diamond 56K Voice Modem
Viewsonic 17" .26 dp Monitor
Altec Lansing Speaker System
Floppy, Keyboard, Logitech Mouse
Windows 98
Corel Wordperfect Office 2000

AMD Athlon® Performance Benchmarks
Ziff Davis WinBench® 95 FPU WinMark



AMD Athlon 550 128 Bit Chipset
200 mhz Core 32MB RAM
512K Cache Hardware DVD

ORDER the fastest PC for your Home, Office or Workstation!
Direct from SHOPPINGPLANET
Toll Free 800-422-9381 or online
<http://www.shoppingplanet.com>

Athlon 550mhz: \$1849 / 600mhz: \$1999 / 650mhz: \$2249



FIC SD11 Board
Up to 750mhz
2-4X AGP port
UDMA 66mhz
133mhz max bus
AMD Chipsets

Worldwide Computers Member of the Price Alliance Network

We carry the all NEW Releases from IBM:
IBM Millennium Standard, Web, PRO
Also Available on Macintosh and Linux



**IBM VIAVOICE
MILLENNIUM**

**LINUX Software and
Systems**

TO Order Call 877-898-6190 or
Online at worldwidecompsoft.com

Corporate, Government and
Education accounts Welcome!

IBM Notebooks: Shop from a
complete line of IBM Notebooks

Thinkpad:
770 600 570
390 240
I Series:
1400 1500
New & Refurbished
available



Lightning Audio Video

<http://www.lightAV.com>

Toll Free 877-390-1599

Over 70,000 Products and 200 major brand names

Pioneer, Toshiba, RCA, JVC, Aiwa, Cerwin Vega, Kenwood, Sony, Panasonic and more...

Home Audio Video: HDTV, DSS, DVD, CD, Receivers, Speakers, Security Systems, Surround Sound,
Cables, Outdoor Speakers, Binoculars, Digital Cameras... Car Audio Video: DVD, CD, Cassette,
Amplifiers, TV, VCR, Speakers, Mini-disc, Security, Lighting... and many more...



Your one stop source for all of your car
and home electronic needs... Visit the
website or call for personal professional
service... We offer the best prices with
personal service you do not find any-
where!!

Toll Free 877-390-1599
Certified Internet Shopping site
by The Public Eye



www.keystonetraining.com

KEYSTONE LEARNING SYSTEMS

Microsoft Certified
Solution Provider

Real-World Training by Real-World Trainers

You don't have to attend a class or read from a book to get the best instruction! KeyStone offers you real-world training from real-world trainers.

Real-world, self-paced instruction

Cuts through the clutter enabling you to certify quicker, expand your horizons faster, and achieve your goals sooner. You'll gain practical hands on experience as you see, hear, and do. After 72 hours you'll retain 75-85% of what you've learned. Compare that with the 60% retention other methods provide.

Office	Hours	Set Price
Word 2000	14	\$279.95
Excel 2000	18	\$349.95
Access 2000	10	\$199.95
Powerpoint 2000	6	\$129.95
Front Page 2000	6	\$249.95
Outlook 2000	6	\$129.95
PhotoDraw 2000	6	\$129.95
Windows 95	12	\$239.95
Windows 98	14	\$279.95
Project 98	10	\$399.95
Access 2000 Develop.	12	\$499.95
Office 2000 The Works	72	\$1299.95
Office 2000 Premium	48	\$899.95
Office 2000 Professional	26	\$499.95
Office 2000 Standard	18	\$349.95

You're the captain of your own ship.

You'll train when and where you want. No more lost productivity from missing work. Learn on your laptop. Study from home. Train the entire group for one low price. You'll have a clear advantage over others in the industry.

Networking	Hours	Set Price
Networking Essent.	6	\$249.95
IE Administration	4	\$169.95
Windows NT 4.0	28	\$899.95
IIS 4.x	6	\$249.95
TCP/IP 4.x	6	\$249.95
Netware 5	18	\$699.95
SQL Server 7.0	16	\$599.95
Linux Sys. Admin.	10	\$399.95
Lotus Notes 5.0	12	\$399.95

Over
950
Titles



Dawn Bjork
Microsoft Certified
Word Instructor



To Order:

1-800-976-1040
8 0 1 - 3 7 5 - 8 6 8 0

We accept C.O.D., Company P.O. or check +



MS Corp., WordPerfect®, MS and Microsoft®, Lotus®, Borland®, Aldus® and their products are trademarks and/or registered trademarks of Novell, Inc., Microsoft Corp., Lotus Development Corp., Borland International Inc., and Aldus Corp., respectively.

Circle 128 on card or go to www.pcworld.com/productinfo



KC# PW109

Some deals are just too cool to pass up!



1st Year on the Internet FREE with Select PC Purchase!

Order one of our select Journey or Ascent PCs, and you'll get more than just a sweet machine. You'll get a free membership to one of the hottest clubs on the Internet—MSN! That's right, MS, as in Microsoft...one of the fastest, most reliable Internet connections out there. So get ready for 365 days of e-mailing, net-surfing, chat-rooming, online-gaming, software-downloading, click-here-for-something—FUN.



MIDWEST MICRO
Circle 153 on card or go to www.pcworld.com/productinfo by **Systemax**

1-888-447-8727
www.mwmicro.com



pentium III
PROCESSOR

Quality PCs — built for less and built to order

Traveler SP Notebooks

Traveler Notebooks ship with:

- 24X Max CD-ROM Drive¹
- 3.5" Floppy Drive
- Wavetable Sound
- Touchpad
- 8-Cell Intelligent Lithium Ion Battery & AC Adapter
- USB, FIR, Serial, Parallel, PS/2 (Keyboard & Mouse), VGA & TV-Out ports
- Microsoft® Windows® 98 (2nd Edition)
- 6.5 Pounds*
- 1 Year Limited Warranty⁴ & 7x24 Tech Support

SP12-400c

- Intel® Celeron™ Mobile processor 400 MHz
- 128K L2 On Die Cache
- 12.1" Active-Matrix (TFT) Display
- 64 MB SDRAM
- 4 GB Ultra ATA Hard Drive
- Microsoft Works®

#028344

\$1299

Business Lease \$69/mo. (24 months)

Feature-rich notebook light on travel weight—and price!

SP13-400c

- Intel® Celeron™ Mobile processor 400 MHz
- 128K L2 On Die Cache
- 13.3" Active-Matrix (TFT) Display
- 64 MB SDRAM
- 4 GB Ultra ATA Hard Drive
- Microsoft Works

#028345

\$1499

Business Lease \$58/mo. (36 months)

Only 1.5" thin and 6.5 pounds



*Including built-in floppy and CD-ROM or DVD-ROM drive

Venture PCs

Venture PCs ship with:

- 104-Win Keyboard
- 2 USB Ports
- 3.5" Floppy Drive
- Microsoft IntelliMouse™
- MS® Windows 98 (2nd Edition)
- 5/3 Year Limited Warranty⁴ & 7x24 Tech Support
- 1st Year On-Site Service provided by BancTec®

PVO-466c

- Intel® Celeron™ processor with 128K Cache 466 MHz
- Intel® 810 Chipset
- 64 MB SDRAM
- 10 GB Ultra ATA Hard Drive
- Intel® 3D Direct AGP integrated Graphics with Dynamic Video Memory
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- PCI Wavetable integrated Sound
- 4 Bay Micro-Tower Case
- MS Office 2000 Small Business²
- Upgrade to a 2X SuperDisk 120 MB Floppy Drive, add \$69

#025946

\$979

PVO-T450

- Intel® Pentium® III processor with 512K Cache 450 MHz
- 64 MB 100 MHz SDRAM
- 10 GB Ultra ATA Hard Drive
- 3D AGP Graphics Card with 8 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- MS Office 2000 Small Business²
- 3COM Fast EtherLink XL Network Adapter, add \$56

#025951

\$1099

Business Lease \$59/mo. (24 months)

PVO-T500

- Intel® Pentium® III processor with 512K Cache 500 MHz
- 128 MB 100 MHz SDRAM
- 13 GB Ultra ATA Hard Drive
- ATI® RAGE 128 3D 2X AGP Graphics Card with 16 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- MS Office 2000 Small Business²
- Upgrade to a 1926 Monitor (18" display), add \$219

#025952

\$1299

Business Lease \$69/mo. (24 months)

PVO-T550

- Intel® Pentium® III processor with 512K Cache 550 MHz
- Intel® SE 440BX-2 Motherboard
- 128 MB 100 MHz SDRAM
- 13 GB Ultra ATA 7200 RPM Hard Drive
- 100 MB Internal Zip Drive (includes one Iomega cartridge)
- ATI® RAGE 128 3D 2X AGP Graphics Card with 16 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- MS Office 2000 Small Business²
- Upgrade to a 18 GB Ultra ATA 7200 RPM Hard Drive, add \$49

#025892

\$1699

Business Lease \$65/mo. (36 months)

PVO-T600

- Intel® Pentium® III processor with 512K Cache 600 MHz

#025893

\$1899

Business Lease \$73/mo. (36 months)

PVO-T600

- Intel® Pentium® III processor with 512K Cache 600 MHz
- Intel® SE 440BX-2 Motherboard
- 128 MB 100 MHz SDRAM
- 27 GB Ultra ATA 7200 RPM Hard Drive
- Ultra ATA 66 Controller
- 250 MB Internal Zip Drive (includes one Iomega cartridge)
- Diamond® Viper V770 TNT-2 4X/2X AGP Graphics Card with 32 MB
- 1926 Monitor (18" display)
- 48X Max CD-ROM Drive¹
- Sound Blaster® PCI 128V Sound Card
- Cambridge® SoundWorks® SBS-52 Speakers
- MS Office 2000 Small Business²
- Upgrade to a 34 GB 7200 RPM Hard Drive, add \$169

#025953

\$2399

Business Lease \$114/mo. (36 months)

Go Configure!™



Pictured with Micro-Tower Case and Cyber Acoustics CA-15 Speakers.

Add a year of MSN Internet access for less than \$11 per month when you purchase a Midwest Micro PC*.

Special Offer!

1 Year #045746 \$129.99

*Valid only at the time of purchase. Call your sales rep for details.

¹For a complete copy of Guarantees or Limited Warranties, write Midwest Micro, Attn: Warranties, 6910 State Route 36, Fletcher, OH 45326 or visit our Web site at www.mwmicro.com.

²Ask Sales Rep for details. On-site service provided pursuant to customer service agreement with the 3rd Party Service Provider. For complete terms of Service Agreement, write Midwest Micro, Attn: Warranties, 6910 State Route 36 East, Fletcher, OH 45326 or visit our web site at www.mwmicro.com. On-site service provided only for hardware replacement if necessary as determined by telephone-based service technician. The 3rd Party Service Provider is unaffiliated with Midwest Micro.

³CD-ROM speeds are variable. Maximum speed shown.

⁴Microsoft Office 2000 Small Business includes Word 2000, Excel, Outlook 2000, Publisher 2000, Expedia Streets 2000 & Small Business Financial Manager 2000.

⁵Maximum data transfer rate may vary due to the particular modem you are communicating with, telephone lines and communication protocols.

Policy: No service charge for credit card orders. Prices are subject to change. Repair or replacement of defective products is at Midwest Micro's discretion. We are not responsible for errors in typographical and photographic. Original shipping and handling fee as well as return shipping charges are non-refundable. Prices do not include shipping or applicable sales tax. There are no returns for credit after 30 days. All returns must be shipped in original packaging. Call or write Midwest Micro for more information on warranties and policies.

Disclaimer: Intel, the Intel Inside logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation in the United States and other countries. Microsoft®, MS and Windows are registered trademarks of the Microsoft Corporation. All products are trademarks of their respective manufacturers. All registered and unregistered trademarks are the sole property of their respective companies.

Details of MSN Internet Access: For users of the Windows 95 or 98 operating system only. Available to residents in the 50 United States and the District of Columbia only. You must additionally subscribe to MSN Internet Access in accordance with its Member Agreement to access the service. A major credit card is required. MSN Internet Access is available only for personal non-commercial use. Fees for MSN Internet Access are included in the purchase price of the computer and are non-refundable. Local phone and/or long distance toll charges may apply. It is the customer's responsibility to check with a local phone company to determine if access numbers are local. Local market network activity and capacity may affect access availability.

<http://pw.mwmicro.com>

Ascent PCs

Ascent PCs ship with:

- 3.5" Floppy Drive • 104-Win Keyboard • 2 USB Ports
- 4 Bay Micro-Tower Case • Genius® NetScroll Mouse
- Microsoft Windows 98 (2nd Edition)
- 1 Year Extendable Limited Warranty^A & 7x24 Tech Support
- 1st Year In-Home Service provided by BancTec^B

PMA-466c

- Intel® Celeron™ processor with 128K Cache 466 MHz
- 1 Year of MSN Internet Access
- Intel® 810 Chipset
- 64 MB SDRAM
- 6.4 GB Ultra ATA Hard Drive
- Intel® 3D Direct AGP integrated Graphics with Dynamic Video Memory
- 40X Max CD-ROM Drive¹
- PCI Wavetable Integrated Sound
- Cyber Acoustics® CA-15 Speakers
- 56K PCI V.90 Modem for Windows³
- Microsoft Works
- Upgrade to Cyber Acoustics CA-50 Speakers with Subwoofer, add \$29

#023233

\$699

PMA-T450

- Intel® Pentium® III processor with 512K Cache 450 MHz
- 128 MB 100 MHz SDRAM
- 13 GB Ultra ATA Hard Drive
- 3D 2X AGP integrated Graphics with 8 MB shared
- 48X Max CD-ROM Drive¹
- PCI Wavetable integrated Sound
- Cyber Acoustics CA-50 Speakers with Subwoofer
- 56K PCI V.90 Modem for Windows³
- Microsoft Works
- Upgrade to a 2X SuperDisk 120 MB Floppy Drive, add \$69

#023235

\$899



Pictured with Mid-Tower Case and Altec Lansing ACS-33W Speakers

Toll Sales:

1-937-368-2309

Toll Fax:

1-937-368-2306

Dealers Call:

1-800-883-1461

InfoFax:

1-800-445-2025

MidWest Micro is an ISO 9001 Registered Company



Go Configure!™

With MidWest Micro you've got the green light to mix and match, pick and choose, add or subtract—to create the perfect PC.

Journey PCs

Journey PCs ship with:

- Microsoft Works Suite 2000—Word 2000, Works 2000, Money 2000 Standard, Encarta® Encyclopedia 2000, Home Publishing 2000 & Expedia® Streets & Trips 2000, Picture It!® Express 3.0, Outlook Express and Internet Explorer 5.0
- Choice of One Lifestyle Series Software Collection • 3.5" Floppy Drive • 118-Win Multifunction Keyboard
- 2 USB Ports • ATX7 Mini-Tower Case • Microsoft IntelliMouse • Microsoft Windows 98 (2nd Edition)
- 5/3 Year Limited Warranty^A & 7x24 Tech Support • 1st Year In-Home Service provided by BancTec^B

Lifestyle Series:

- Entertainment 2000—Golf 99, Pinball Arcade, Puzzle Collection & Return of Arcade
- Creative Reference 2000—Bookshelf 99, Encarta Virtual Globe 99 & Picture It 99
- Discovery 2000—My Personal Tutor Preschool & Kindergarten, Goosebumps: Escape from Horrorland, Creative Writer & Magic School Bus Animals (subject to change)
- Gamers 2000—Combat Flight Simulator, Age of Empires & Monster Truck Madness 2

PJM-T450

- Intel® Pentium® III processor with 512K Cache 450 MHz
- 1 Year of MSN Internet Access
- 64 MB 100 MHz SDRAM
- 10 GB Ultra ATA Hard Drive
- 3D AGP Graphics Card with 8 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- Aureal® Vortex Advantage 256V Sound Card
- Cyber Acoustics CA-50 Speakers with Subwoofer
- 56K PCI V.90 Modem for Windows³
- Upgrade to a 13 GB Ultra ATA Hard Drive, add \$25

#025915

\$1179

Business Lease \$63/mo. (24 months)

PJM-T500

- Intel® Pentium® III processor with 512K Cache 500 MHz
- 1 Year of MSN Internet Access
- 128 MB 100 MHz SDRAM
- 13 GB Ultra ATA Hard Drive
- 3D AGP Graphics Card with 8 MB
- 1726 Monitor (15.8" display)
- 48X Max CD-ROM Drive¹
- Sound Blaster PCI 128V Sound Card
- Altec Lansing® ACS-33W Speakers with Subwoofer
- 56K PCI V.90 Modem for Windows³
- Upgrade to a 6X DVD-ROM Drive, add \$79

#025968

\$1379

Business Lease \$53/mo. (36 Months)

PJM-T600

- Intel® Pentium® III processor with 512K Cache 600 MHz
- 1 Year of MSN Internet Access
- 128 MB 100 MHz SDRAM
- 13 GB Ultra ATA 7200 RPM Hard Drive
- 3Dfx™ Voodoo3 2000 2X AGP Graphics Card with 16 MB
- 1726 Monitor (15.8" display)
- 6X DVD-ROM Drive
- DVD Software Collection
- Sound Blaster PCI 128V Wavetable Sound Card
- Altec Lansing ACS-33W Speakers with Subwoofer
- 56K PCI V.90 Modem for Windows³
- Upgrade to a Sound Blaster Live! Value PCI 512V Sound Card, add \$25

#025920

\$1979

Business Lease \$76/mo. (36 months)

PJM-T550

- (Intel® Pentium® III processor with 512K Cache 550 MHz)

#025921

\$1779

Business Lease \$68/mo. (36 months)

PJM-T600

- Intel® Pentium® III processor with 512K Cache 600 MHz
- 1 Year of MSN Internet Access
- 128 MB 100 MHz SDRAM
- 27 GB Ultra ATA 7200 RPM Hard Drive
- Ultra ATA 66 Controller
- Diamond Viper V770 TNT-2 4X/2X AGP Graphics Card with 32 MB
- 1926 Monitor (18" display)
- CD-R/RW Drive (4X Write/2X Rewrite/24X Read)
- 6X DVD-ROM Drive
- DVD Software Collection
- Sound Blaster Live! Value PCI 512V Sound Card
- Cambridge SoundWorks FPS-2000 Digital Speakers with Subwoofer and FourPoint SurroundSound
- 56K PCI V.90 Modem for Windows³
- Digital Creativity Imaging Controller with IEEE-1394, add \$75
- Upgrade to a 34 GB 7200 RPM Hard Drive, add \$169

#025970

\$2729

Business Lease \$104/mo. (36 months)

GSA Schedule #GS-35F0467J



Sales: Mon-Fri 8am-9pm
Sat 10am-4pm EST

1-888-447-8727

Circle 153 on card or go to www.pcworld.com/productinfo

AD# W10

HERE'S HOW



WINDOWS TIPS

SCOTT DUNN

Secrets of the Explorer Address Bar Revealed



LOOK AT THE TOP of any folder or Explorer window on your screen. See that Address bar? It's not just for Web addresses, you know. You can also use it to issue commands and to navigate your hard disk. Here are my favorite undocumented tips and tricks for getting the most out of that little-used box:

Launch anything. You can launch any folder, file, application, shortcut, or batch file by typing its name in the Address bar. If the item you want to launch isn't listed in the Set Path line of your autoexec.bat file or in a place Windows normally checks (such as the Windows folder or the desktop), you may have to type a complete path (for example, `c:\Program Files\opera\opera.`

`exe`). In addition, reader Robin Sequira of Miami points out that you can open Control Panel items simply by entering `Control Panel\` followed by the name of the item you want (for example, `Control Panel\Display`). You can use this technique to open items in the Printers or Dial-Up Networking folders, too (for example, you might type `Printers\LaserJet`).

Take command. You can use the Address bar to issue any "external" DOS command—that is, any command that runs as a separate program (such as those found in the Windows\Command folder, including Xcopy, Move, and Attrib). To copy all the text files in your Documents folder to a folder called My Text Files, you'd type `xcopy c:\documents*.txt "c:\My Text Files"` and press **<Enter>**. (Capitalization isn't required, but quotation marks are, if any folder or file name contains spaces.) Windows then runs the command through a quickie DOS session.

Type DOS commands. To run so-called internal DOS commands—such as copy, del, date, and time—type `command.com /c` before entering the specific DOS command that you want carried out (or type `command.com /k` if you'd like to keep the DOS window open and working after DOS executes the command). Alternatively, you can create a batch file composed of the DOS commands you use most often. One quick way to make a batch file is to use wildcards to rename groups of files (Explorer can't do this): In Notepad, type `rename %1 %2` and press **<Enter>**. Save the file in the Windows folder or its Command folder as `rn.bat`. To run it, type `command.com /c rn.bat`.

Start a search. To run a Web search while you're online, click in the Address bar, type `find`, `go`, or `?`, followed by the text you want to search for, and then press **<Enter>**.

Trim the typing, part I. As you type a folder path or URL in the Address bar, Auto-Complete supplies the first folder or Web address it finds that matches the characters you've typed. If only the beginning of the address appears, press the right-arrow key (to move the cursor to the end of the address) until you obtain the complete path or URL; then press **<Enter>**.

Trim the typing, part II. For even more abbreviated typing, use the right-mouse but-

ton to drag your most frequently used applications, folders, and files to the Windows\Command folder, and choose *Create Shortcut(s) Here*. Then rename each shortcut with a two-letter name so you can launch it with minimal typing. For example, you could change your word-processor shortcut from word.exe to **wp**, your spreadsheet shortcut to **ss**, and so on. The downside is that you have to include the suffix .lnk (the hidden extension for shortcuts) when entering the shortcut name in the Address bar—for example, **wp.lnk**. Otherwise, Windows will think you've typed in a Web address. After the first time you launch this way, AutoComplete



FIGURE 1: GIVE YOUR ADDRESS bar some extra space by stretching the Taskbar—just grab the edge with your mouse and pull.

will finish the typing for you in the future. **Trim the typing, part III.** To reduce typing further, try this. Choose *Start>Run*, type **regedit**, and press **<Enter>**. Navigate down the tree in the left pane until you come to this folder: **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\App Paths**. Right-click on the *App Paths* folder (called a *key* in the Registry) and choose *New>Key*. In the Address bar, type the shorthand name you've chosen, followed by **.exe**—regardless of whether you plan to use this method to launch an application or a file. For example, you could type **r.exe** to launch a report file in a desktop publishing application. Press **<Enter>** to complete the naming. With your new shorthand key selected in the left pane, double-click the *(Default)* icon in the right pane. In the Value data box, type the path and name of the file (that is, the application, data file, or shortcut) you want to launch. For example, you might type **c:\My Documents\Quarterly Report.pm6**. (If you're entering the path to a shortcut, be sure to add **.url** to Web shortcuts and **.lnk** to other shortcuts.) Click **OK** and exit the Registry Editor. The next time you type your shorthand text (minus the **.exe**)—such as **r**, for the report file mentioned above—the Address bar will open the specified file or application.

Make it your own. Always keep your Address bar visible along the top or bottom of your screen for easy access. If the Taskbar looks too crowded, drag its edge toward the center of the screen to increase its girth, thereby allowing the Address bar to occupy all or most of a separate line (see **FIGURE 1**). You may need to maneuver other toolbars around to get this effect. If you keep your Taskbar on a vertical edge, first drag the Address bar to the desktop to make it a separate window, and then drag the Address window to the top or bottom of your screen. Now you can give the autonomous Address bar its own custom settings by right-clicking the left end

of the bar. In addition, you can choose from among options that keep it on top of other windows or that automatically hide it until

your mouse moves to its location.

Keyboard it. Though you can't create a shortcut key for the Address bar, you can access it from the keyboard. Press **<Ctrl>-<Esc>**, **<Esc>** to display and then cancel the Start menu; then press **<Tab>** as many times as needed to activate the Address bar. Once it's active, you can scroll through your last few entries by pressing **<F4>**, **<Alt>-<Down Arrow>**, or **<Alt>-<Up Arrow>**.

'ALARMING' BATCH FILES

IF YOU USE batch files to automate routine chores, you may occasionally need a more insistent batch file than what the standard simple beep or screen message provides—to let you know that a particular routine has been executed or to remind you about another task. To play a sound from a DOS batch file, you can use the **/play** and **/close** command-line switches with either Media Player or Sound Recorder. For the latter to play a sound that alerts you to errors, try adding a line like this: **sndrec32.exe /play /close c:\windows\media\error.wav**, replacing the path and file name with corresponding IDs for one of your own .wav files (see **FIGURE 2**). For Media Player, type **mplayer.exe /play /close c:\windows\media\error.wav**. If you don't want a sound utility popping up on screen during your batch file, you can

WINDOWS TIPS

- 266** Use Explorer's Address bar to the fullest, run utilities at shutdown, enable power saving.

WINDOWS NT

- 270** Recover accidentally deleted files, protect your networked system from remote users.

ANSWER LINE

- 272** Keep Windows from crashing, archive Outlook Express e-mail, lasso your fonts.

INTERNET TIPS

- 274** End Web-page eyestrain, find small-business help on AOL, let utilities enhance your surfing.

WORD PROCESSING

- 282** Use hyperlinks in your documents, dump AutoComplete, move graphics smoothly.

SPREADSHEETS

- 286** Add AutoShapes to your worksheets, print selected rows in 1-2-3, catch repeated values.

HARDWARE TIPS

- 288** Update your hardware profile, monitor laptop power, check your phone line's quality.

UPGRADE GUIDE

- 290** Connect two or more PCs in a network.



DON'T MISS ADDITIONAL HERE'S HOW information at www.pcworld.com/hereshow.

take reader Steve Gibson's advice and use Wav.exe, a freeware command-line sound player designed just for batch files. It's available at www.basicguru.com/cmdtools or from PC World Online's FileWorld. ▶



FIGURE 2: MAKE YOUR BATCH files speak with the right command line for Sound Recorder.

SAVE DISK SPACE ON DUAL-BOOT SYSTEMS

9X IF YOU DUAL-BOOT between Windows 9x and NT, you must be careful to avoid wasting valuable disk space. Accordingly, have every version of Windows on your system use the same file for virtual memory (disk space that Windows treats like RAM to give your system an extra boost and allow more applications to run at once).

First, boot to Windows NT. Right-click *My Computer* and choose *Properties*. In the System Properties dialog box, click the *Performance* tab. In the Virtual Memory section, click the *Change* button. In the Drive list, select the drive that you want Windows to use for virtual memory. Typically, this is the disk with the most free space. (The box below the Drive list identifies the amount of space available on the selected drive.) Click in the *Initial Size (MB)* box, and type the amount of space

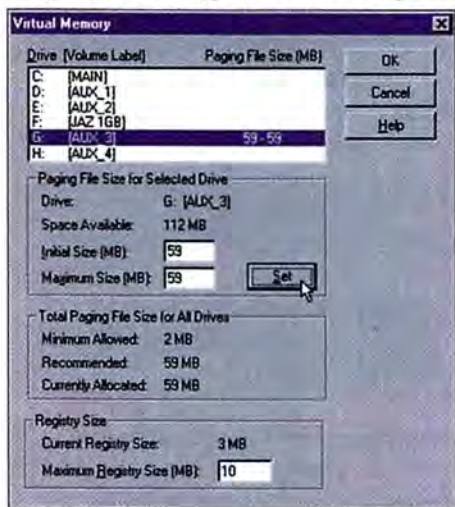


FIGURE 3: SAVE DISK SPACE by setting a specific size for virtual memory files in Windows NT and 9x.

(in megabytes) you want devoted to virtual memory. Microsoft recommends that this amount be equal to or greater than the amount listed as the recommended size in the Total Paging File Size for All Drives section of the dialog box. Then type that same amount in the Maximum Size (MB) box, and click *Set* (see FIGURE 3).

If you previously designated a different drive, select that drive from the list now, enter 0 in both the Initial Size and Maximum Size boxes, and click *Set* to remove

the virtual memory file from that drive. After you're finished, click *OK* and then *Close*. When prompted to do so, click *Yes* to restart your computer.

Now boot to Windows 95 or Windows 98. Right-click *My Computer* and choose *Properties*. In the System Properties dialog box, click the *Performance* tab and then click the *Virtual Memory* button. Select *Let me specify my own virtual memory settings*. From the Hard disk list, choose the same drive you selected in NT. (If your software lets you boot to multiple operating systems, remember that the drive letter you selected in NT may not correspond to the same drive in Windows 9x. Use Explorer to check the drive letters against their volume names, if necessary.) In the Minimum and Maximum boxes, enter the same size you entered in the corresponding boxes in NT. Click *OK* and then *Yes* to ignore the scary warning. Click *Close* in the System Properties dialog box, and click *Yes* to restart your computer.

Finally, restart the computer in Windows 9x. Choose *Start-Run*, type *sysedit* and press *<Enter>*. Locate the heading "[386Enh]" in *system.ini*. Beneath this heading and before any other bracketed headings, look for a line that reads "PagingDrive=C:" (the drive letter may differ for your system). If you don't see it, add it on a separate line. Similarly, make sure you have a line under the "[386Enh]" heading that reads "PagingFile=C:\PAGEFILE.SYS" (you may have to add this line as well, adjusting the drive letter as needed to match the drive you chose for your virtual memory). Save the file and restart your computer once again. Both operating systems will now use the same file for virtual memory. If your Windows 9x drive contains a Win386.swp file, you can delete it to recover disk space.

CATCH AN ENERGY STAR

? MY MONITOR HAS an "Energy Star" sticker on it certifying that it has a power-saving design, but when I try to turn on the energy-saving options for the screen saver in the Display

WINDOWS TOOLBOX

Shut Down Windows the Way You Start It

WINDOWS GIVES YOU many different ways to run applications when you start up but no way to run utilities when you shut down. I find this annoying, since I'd rather have the virus scanning, disk checking, and backing up occur after I leave the office than while I wait. ShutdownPlus replaces the normal Windows 9x shutdown dialog box and provides such useful options as running utilities or batch files, deleting temp files, and enforcing password protection. You can download a free trial copy of the \$35 ShutdownPlus from FileWorld or from its creators at WM Software (www.wmsoftware.com).

Properties dialog box, the Energy Star section is grayed out. What should I do?

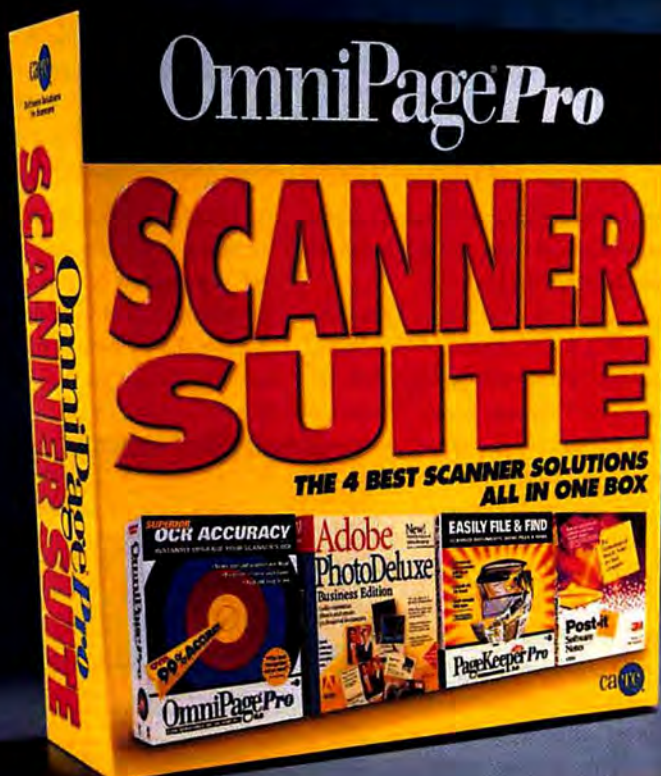
Alan Reader, via the Internet

THE PROBLEM HERE is that the settings for low-power monitor options are in one place, and the setting that tells Windows you have an Energy Star monitor is in another. Let's start at the beginning: Right-click the desktop and choose *Properties* (or double-click the *Display* icon in the Control Panel window), and click the *Settings* tab. This panel is the place where you tell Windows about your monitor; unfortunately, the panel varies from one video driver to another. Look for a button that says something like *Advanced Properties* or *Change Display Type*, and click it. If you don't see any mention of Energy Star in the resulting dialog box, you may have to click a *Monitor* tab or some other monitor settings button to find the Energy Star. After a little digging around, you should find a check box that says *Monitor is Energy Star compliant*. Click to put a check in the box and then click *OK* or *Close* as many times as necessary to return to the Display Properties sheet. Finally, click the *Screen Saver* tab. You should now be able to specify settings for low-power standby and monitor shutdown.



You'll find files mentioned in this article at www.fileworld.com/ magazine. We welcome tips and questions, and we pay \$50 for published items. PC World contributing editor Scott Dunn (scott_dunn@pcworld.com) is a principal author of *The PC Bible*, 2nd Edition (Peachpit Press, 1995).

FOUR #1's IN ONE.



**Introducing all-new OmniPage Pro Scanner Suite.
A must for every scanner owner!**

With new OmniPage Pro® Scanner Suite, you and your scanner can now produce truly professional results every time. It offers you four best-of-breed scanner software products from three industry leaders—all for one unbelievable price. It's an unbeatable value.

Upgrade your OCR accuracy now with OmniPage Pro 9.0. Over 99% accurate*, it quickly turns paper documents into editable text files. You'll never have to retype again.

Adobe® PhotoDeluxe® Business Edition allows you to easily scan and

modify your photos, and offers hundreds of templates to create professional documents.

PageKeeper® Pro 3.0 automatically files and finds your scanned documents, Word files, Web pages and more—so you don't have to. And Post-it® Software Notes from 3M lets you tag Post-it®

Notes to your electronic documents.

New OmniPage Pro Scanner Suite has all the scanner tools you need, all in one box. To order, call now or visit your local reseller.



*On laser-quality documents using standard fonts. **Suggested price US dollars—subject to change without notice. Offer valid in US and Canada only. Caere, the Caere logo, OmniPage Pro and PageKeeper are registered trademarks of Caere Corporation. All other names and trademarks are the property of their respective companies. ©1998. All rights reserved.

Circle 91 on card or go to www.pcworld.com/productinfo



*Caere OmniPage Pro 9.0:
The Most Accurate OCR*



*Adobe PhotoDeluxe
Business Edition:
Leading Image Editor*



*Caere PageKeeper Pro 3.0:
The Best Document Manager*



*Post-it® Software Notes:
The Leading Annotation Tool*

SPECIAL INTRODUCTORY PRICE—LIMITED TIME ONLY

\$149** 800-736-5735
EXTENSION 130

OMNIPAGE PRO SCANNER SUITE

- Accurately recognize paper documents
- Quickly customize your photos and create professional-looking documents
- Easily file and find scanned documents, Word files, Web pages and more
- Organize and communicate your ideas faster and easier



Software Solutions
for Scanners

www.caere.com

Free Utility Recovers Accidental Deletions

HAVE YOU EVER DELETED a file by accident? Of course not. If you're an OS purist like me, you probably eschew system utilities like Norton Utilities, leave NT's Recycle Bin disabled, and smoke unfiltered Camels while topping off the gas tank.



To avert a deletion disaster, install Norton Utilities for Windows NT or Executive Software's Undelete for Windows NT. Both of these handy programs replace NT's standard Recycle Bin with enhanced versions that preserve files even when they've

been deleted from the system's command prompt or from other workstations. Still, my favorite utility is free: Emergency Undelete from Executive Software (see **FIGURE 1**). Though it carries fewer features than Undelete for Windows NT, Emergency Undelete retrieves deleted files from both NTFS and FAT partitions—even if you deleted them prior to installing the program. Download Emergency Undelete at www.executive.com/undelete/eudfree/eudguest.htm or from FileWorld.

LOCK OUT NETWORKED USERS



YOU HAVE BEEN WRITING about securing your NT system against local users. But what about remote users? I can restrict access to files and directories when people dial in to my system (or access it via the LAN), but I'd like to block them from accessing the system in any way.

I've removed all shared drives and folders by right-clicking them in Explorer, choosing

Properties•**Sharing**, selecting **Not Shared**, and clicking **OK**. However, I can't remove certain shared items; after I shut down

and restart my computer, NT's default shared drives reappear. Is there any way to tell NT to remove them permanently?

Jeff Schwartz, Edina, Minnesota

THERE IS A WAY to banish those shares, but you may not want to pay the price. NT creates default shares for your drives and for the Windows NT system directory so that administrators, backup programs, and other authorized users and services can access otherwise private user files. These shares (identified as the drive letter or file name plus a dollar sign, as in C\$ or ADMIN\$) don't show up when other PCs browse your system. But any remote user who knows their exact share names and has access rights can connect to them.

Regrettably, NT's security is leaky. Though Security Pack 5 fixes flaws that let ordinary users elevate themselves to administrator status or otherwise bypass NT's security checkpoints, other holes may exist. So if you're on a network or connect to the Net with a modem, you may want to remove the shares to protect your data.

To do this, open NT's Registry Editor (select **Start**•**Run**, and type **regedit**). Browse to HKEY_LOCAL_MACHINE\System\CCS\Services\LanManagerServer\Parameters, double-click the key **AutoShareWks**, enter **3D0** in the value field, and click **OK**. Close the Registry Editor and restart.

Removing all the default shares could disable features you like, such as the abil-



Don't Cache My Passwords

IF YOU DIAL IN to another NT system's Remote Access Service (RAS) from your NT 4 machine, the connection dialog box offers you the option of saving your password. This is a convenience (because you don't have to type your password every time you dial in), but it may leave your PC vulnerable to unauthorized users. Alas, a bug in NT causes it to cache the password regardless of the setting you choose. Find the patch at ftp.microsoft.com/bussys/winnt/winnt-public/fixes/usa/nt40/Hotfixes-PostSP5.

ity to create backups and to administer accounts. A less draconian way to bolster NT's security is to remove unnecessary shares and user accounts, restrict or remove the Everyone and Guest groups, and disable the Server service. More on these procedures in a future column.

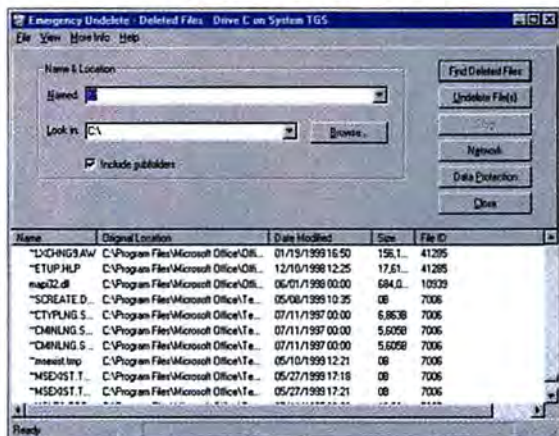


FIGURE 1: BRING BACK DELETED FILES with Executive Software's free Emergency Undelete utility.



Find files from this article at www.fileworld.com. Scott Spanbauer is a contributing editor for PC World. Send your questions and tips to nttips@spanbauer.com. We pay \$50 for published items.

Undelete for Windows NT

\$75; Executive Software; 800/829-6468; www.execsoft.com

PRODUCT INFO NO. 696

Norton Utilities

\$99; Symantec; 408/253-9600; www.symantec.com

PRODUCT INFO NO. 697

Employee of the Millennium.



NOW ONLY \$599!
Suggested Retail Price



ScanMaker 4

FEATURES

- Microtek's patented Emulsion Direct Imaging Technology™ (U.S. Patent No. 5,574,274)
- Full 36-bit color depth — input and output / 3 long-life cold cathode lamps
- Adaptec PCI SCSI interface card for Windows or Macintosh G3 systems¹
- 600 x 1200 dpi optical resolution / 9600 dpi enhanced / Full legal-sized scanning bed
- Microtek's ScanWizard™ scanner controller / Adobe Photoshop LE image-editing software
- Caere OmniPage Limited OCR software for scanning text

Is the hardest worker in your company sitting on a desktop? If not, then maybe you need the **Microtek ScanMaker® 4** — the incredibly fast, dual-media color scanner that does twice the work of ordinary scanners.

Featuring Microtek's own patented **Emulsion Direct Imaging Technology™ (E.D.I.T.™)**, the ScanMaker 4 captures images directly from the surface of film transparencies or negatives — *internally*. No more light refraction problems. No more annoying Newton rings. Just amazingly sharp images loaded with detail. Photographic prints, illustrations, or documents up to 8.5" x 14" can be scanned on the scanner's upper bed.

The scanner's 36-bit color depth (input and output), 600 x 1200 dpi optical resolution (up to 9600 dpi enhanced) and superior optics deliver performance suitable for any office's graphic needs, whether you have thousands of employees or just one. And the ScanMaker 4 includes an **Adaptec PCI SCSI interface card** for Windows or Macintosh G3 systems. All this and some great software for a suggested retail price of only \$599, it's almost like getting two scanners for the price of one.



OP LIMITED EDITION

MICROTEK

www.microtekusa.com

YOUR QUESTIONS ON: Archiving Outlook Express e-mail ♦ Managing fonts

How Can I Keep Windows From Crashing?



WINDOWS CRASHES with the regularity of the tides, usually when I haven't saved anything to disk for a while. How do I make it more stable?

Jenny McGuire, Honolulu

WINDOWS CRASHES happen—that's just the nature of the beast. Here are some of the most common causes of Windows crashes, along with measures you can take to reduce the likelihood that your system will plummet to a fiery death.

Out of resources: Windows stores some vital information in two 64KB sections of RAM called *resources*. When they get filled up—usually when you run a lot of programs at once or keep your computer on for days at a time—Windows becomes unstable. To limit the frequency of your crashes, don't load unnecessary programs, and reboot your computer every day. For more about resources, see www.pcworld.com/aug99/answers.

Video drivers: When the code controlling your display gets confused, it takes everything down with it. If you're getting video-specific error messages frequently, check your graphics board vendor's Web site for a more up-to-date driver.

Corrupted registry: This one's likely to happen when you install an application. Windows backs up the Registry regularly, but if you've been living with the crashes for more than a few days, you're unlikely to have a backup that will help. Windows 98 comes with a tool that might fix the problem: Exit Windows to the DOS prompt. At the prompt, type `scanreg/fix`, press `<Enter>`, and cross your fingers. Visit www.pcworld.com/jun99/windowstips

for more about how to fix Registry problems.

Viruses: If something that used to work is suddenly giving you trouble, you just might have caught some malicious code. Make sure your antivirus software is up to date. If you don't normally ask it to check all files when you

start up your computer, perform an all-file check at least once a week.

Mismatched system files: Installation programs can replace existing Windows .dll files. You've probably seen a dialog box during a software installation that said the program has found a later version of a file on your hard disk than the one it is installing. If you chose to install the earlier version, programs expecting the original .dlls can get confused and bring down the house.

A less severe solution comes in commercial "undo" packages such as Wild File's GoBack (see **FIGURE 1**) and Kiss Software's Undo & Recover Toolbox, which help you recover from faulty installations.

Bad applications: Sometimes an application will do something it shouldn't—such as use a piece of RAM reserved for another program—with potentially drastic results. Windows keeps an eye out for such behavior and, in theory at least, closes the app before it can crash Windows. But it doesn't always work that way. If Windows regularly crashes when you use a particular app, check the application vendor's site for bug reports.



Better Y2K Analysis

SYMANTEC'S YEAR 2000 analysis tool, Norton 2000, won't show you many of the Y2K problems it finds in your spreadsheet files if you leave Norton at its default settings. To catch such potential problems as formulas based on dates that display only a two-digit year, select *Edit>Settings* in Norton 2000, and click the spreadsheet icon at the left edge of the Settings dialog box. From the pull-down menu on top, select *Report Issues of Severity >= 1*, and then click OK and start your scan.

Hardware: Bad memory, dying power supplies, overheated processors, poorly connected cables, or badly seated boards are all capable of destabilizing your operating system. If nothing else solves your problem, unplug and then open your computer. Excessive dust can cause overheating, so you might try using a small vacuum cleaner or compressed air blower (made specifically for PCs) to clean it up. Also check to make sure the cables and boards are connected properly. If you continue to experience frequent crashes, take your computer to your service vendor for a professional checkup.

If nothing else works and the crashing becomes intolerable, maybe it's time to wipe out and reinstall Windows. For details on how to do this, check out www.pcworld.com/sept99/answers.



FIGURE 1: DISASTER PREVENTION can be easy: Just install GoBack and relax.

ARCHIVE YOUR OUTLOOK EXPRESS E-MAIL



MY OUTLOOK EXPRESS e-mail box is overloaded with messages. Is there a way I can move some of the mail to another location, such as a Zip drive?

Avnish Kashyap

Mississauga, Ontario

OUTLOOK EXPRESS's folders offer a convenient way to organize your e-mail once you've received and read it, enabling you to group messages by client or project, for example. You can create a folder with the **File>Folder>New Folder** command, then drag messages to it. But if you want to move the contents of an aging folder somewhere else for long-term storage, Outlook Express offers no help.

Luckily, if you're using Outlook Express 5, the job is pretty easy. (I don't recommend trying the following with Outlook Express 4.x, due to odd, unfriendly file-naming conventions.)

Before you archive a folder, make it smaller. In Outlook Express, highlight the folder in question and select **File>Folder>Compact**. Or shrink all of them with **File>Folder>Compact All Folders**.

In Windows Explorer, go to the folder (I'm talking about regular Windows folders here, not the Outlook Express variety) where Outlook Express stores your mail. The default location is **C:\Windows\Application Data\Microsoft\Outlook Express**. This folder contains a .dbx file for every folder inside of Outlook Express (see **FIGURE 2**); for instance, if you're keeping some mail in a folder called Clients, you'll find a file here named Clients.dbx. Find the file for the mail folder you wish to archive, and copy it to your Zip disk or whatever archive location you choose. Back in Outlook Express, right-click the folder you're archiving and select **Delete**. Click **Yes**.

Should you ever need to restore an archived e-mail folder, start in Outlook Express. Use **File>Folder>New Folder** to create a new folder with the same name as the old one. Once it has

been created, click on it; you'll be told that there are no items there. Next, click on another folder so that the new folder is no longer highlighted.

Move the archived file back from your archive source to its original location, such as **C:\Windows\Application Data\Microsoft\Outlook Express**. In the **Confirm File Replace** dialog box, make sure you're replacing a new file with an older, bigger one before clicking **Yes**.

Return to Outlook Express and go to the new folder. You'll see your old messages.

CATCH A .CAB



I WAS CLEANING up my hard drive when I found 13 .cab files taking up about 6MB. What kind of files are these? Can I delete them?

Irwin Levine

Summerfield, Florida

FILES WITH THE .cab extension, or cabinet files, are archives similar to .zip files. They can contain one or more compressed files of any type. Cabinet files are used mostly for installing programs. Search any CD-ROM that contains an application and you're likely to find an abundance of .cabs.

So why do you have .cab files on your hard drive? Some installation programs copy .cab files there as a convenience—the files allow you to install additional components without hassling with the CD-ROM. If you're tight on space, chances are you can delete .cab files without any serious consequences.

But before you delete, you may want to inspect the contents of a .cab file to get an

GoBack

\$70; Wild File; 888/945-3345; www.goback.com

PRODUCT INFO NO. 611

Undo & Recover Toolbox

\$30; Kiss Software; 888/768-5477; www.kissco.com

PRODUCT INFO NO. 612

idea of what application or program files it holds. Windows 98 users can double-click a .cab file to see its contents. If you're using Windows 95, however, you'll need a program called CabView, which is part of Microsoft's free Power Toys collection. You can download CabView from www.microsoft.com/windows95/downloads/contents/wutoys/w95pwrttoysset or from FileWorld. Once it's installed, just double-click a .cab file to see what's inside.

MANAGE YOUR FONTS



COULD YOU TELL me how to deal with all the fonts on my system? I want to pick the ones that I actually need, store others so I can use them later if need be, and just get rid of the rest.

John R. Koslek III

Kalamazoo, Michigan

YOUR FONTS ARE stored in **C:\Windows\Fonts**. To see what a font looks like, double-click its icon. To set a font aside, drag it to another folder or drive. When you want it again, drag it back. To delete a font, right-click it and select **Delete**.

If you have many fonts, these steps can be a hassle. You may want a third-party font management program. My favorite is Peter Theill's FontLister (www.theill.com). The freeware version, also available on FileWorld, will let you view multiple files in one window, install new fonts, delete old ones, and print sample text in all or some fonts. The \$5 shareware version will also let you view selected fonts and use an Explorer-like folder tree to work with fonts in particular folders.



Find files mentioned in this article at www.fileworld.com/magazine. Send your questions to answer@pcworld.com. We pay \$50 for published items. Contributing Editor Lincoln Spector's column Gigglybytes appears in 13 publications.



FIGURE 2: ARCHIVING A MAIL FOLDER is easy in Outlook Express 5, since its folder names match Windows' file names.

Increase your business savvy with AOL ♦ Share Eudora Mail ♦ Organize Web pages

Four Ways to Make Web Pages Easier on Your Eyes

ARE WEB PAGES becoming harder to read, or is your eyesight getting worse? Probably both. In their quest to be eye-catching, some Web sites use retina-unfriendly fonts and backgrounds. Internet Explorer 4.x and 5 include settings for displaying Web pages in the font sizes, styles, and colors you specify, so you'll never again have to squint to read 4-point text. Navigator offers similar settings, but these don't work consistently—and in fact they sometimes make matters worse by displaying pages in unreadable color combinations, such as blue letters on a black background.

Here are some useful sight-saving tips:

Increase font size. If the text is too small to read, select *View • Text Size* and choose *Larger* or *Largest*. If you find that most of the pages you visit use uncomfortably minute fonts, you're better off adding the *Size* button to the toolbar. Right-click a blank area on the toolbar, select *Customize*, click the *Size* icon in the left pane, and click *Add* (see **FIGURE 1**). **Note:** The *Size* button is available on IE 4.x's toolbar by default.

Set high contrast. You can change Windows 9x's screen color combination to

something stark (black on white, say, or white on black) to heighten the display's contrast. Select *Start • Settings • Control Panel*, and then click the *Accessibility Options* icon. Under the *Display* tab, select *High Contrast*. Click the *Settings* button to configure the browser to

your preferred colors.



Ignore default formatting. Configuring IE 5 to ignore the colors and font formatting that a Web page specifies and instead to defer to the Windows color scheme you favor (see previous tip) isn't hard. To do it, select *Tools • Internet Options*, and in the

General tab click the *Accessibility* button. (In IE 4.x, select *View* instead of *Tools*.) In the *Formatting* box, click the check boxes next to *Ignore colors specified on Web pages*, *Ignore font sizes specified on Web pages*, and *Ignore font styles specified on Web pages*. Click *OK* to confirm these changes.

Enlarge the pointer. Install Microsoft's free Windows Alternative Mouse Pointer (altptn.exe), and you can stop squinting to find the cursor. This supersize pointer also changes colors depending on the background color of the site you browse. Meta-Mouse, an \$18 shareware utility, lets you make your cursor bigger and brighter—and blinking. Find

Bookmarklets

WISH YOU COULD click a button on your browser's toolbar to change the color of a Web page, remove its annoying background, or stifle its music? At Steve Kangas's Bookmarklets site (www.bookmarklets.com), you'll find hundreds of free "bookmarklets" that add useful buttons to your browser for speeding up searches, customizing navigation, and providing instant access to mail folders. Be sure to read the directions. Some bookmarklets work only with certain browsers, and some don't work with frames.



both on FileWorld. The Trace Research Center at the University of Wisconsin in Madison (trace.wisc.edu/world/computer_access/win/winshare.html) has a big library of these and other mouse enhancements that increase cursor visibility on garish, gothic, or ad-riddled Web pages.

FIND BUSINESS HELP ON AOL

FEW PEOPLE REALIZE that America Online is a diamond mine for small-business owners. I bet you didn't know that it houses a forum for appliance sales and service professionals—as well as one for businesses that sell gift baskets. This online service is peppered with gemstones of information, but finding the ones you need may require some digging. Unfortunately, typing keywords like *business* into AOL's searcher won't get you far. AOL runs at least five forums devoted to earning money through arts and crafts, and a seemingly infinite number that provide advice on running a home business. Here are some tips for finding business and career advice—as well as computer help—on this big, Byzantine service.

Business and career advice. The following keywords will take you to the main business information pages:

startup or small business: Either of these entries will connect you to AOL's array of Business Know-How forums, as well as to the Entrepreneur's Startup Channel and Small Business Administration Online.

professional forums: This takes you to an

Continued on page 281 ►

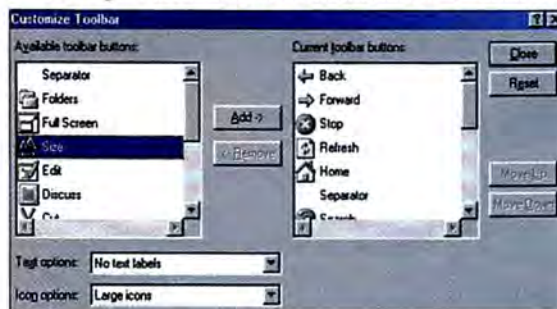


FIGURE 1: YOU CAN EASILY CUSTOMIZE Internet Explorer 5's toolbar by adding or removing buttons via this dialog box.

Some people want technology made simple.

Others want a simple way of doing business.

Have both.





Anyone can promise you "custom" technology, but how many
Together we discuss what you want to accomplish, and what
protect your business and budget. All you have to do is call,



Gateway™ E-Series Managed Desktops

Designed to simply maximize network efficiency,
stability and manageability.

E-1400 400 Small and Serviceable

Intel® Celeron™ Processor 400MHz with 128K Cache
64MB SDRAM
EV500 .28 Screen Pitch 15" Monitor (13.9" viewable)
Integrated Intel 752 Video w/4MB
6.8GB 5400 RPM S.M.A.R.T.™ II Ultra ATA Hard Drive
12X min/24X max CD-ROM Drive
3.5" Diskette Drive
Integrated Intel 10/100 Ethernet
with Wake-up On LAN
3-Bay Slimline Convertible Case
2 PCI Slots
104+ Keyboard
Microsoft® IntelliMouse® & Mouse Pad
MS® Windows 95
Wired for Management (WfM) Compliant
Intel LANDesk® Client Manager 6.0
3-Year Parts Limited Warranty with 3-Year On-site Service¹

\$899 or \$31/mo.
36 mos. business lease²

E-3200 450 Business Workhorse

Intel Pentium® III Processor 450MHz with 512K Cache
128MB 100MHz SDRAM
EV700 .28 Screen Pitch 17" Monitor (15.9 viewable)
Integrated ATI RAGE™ 128VR 2X AGP w/8MB
6.8GB 5400 RPM S.M.A.R.T. II Ultra ATA Hard Drive
17X min/40X max CD-ROM Drive
3.5" Diskette Drive
Integrated 3Com® US Robotics® 10/100 Ethernet
with Wake-up On LAN
5-Bay Convertible Case
104+ Keyboard
MS IntelliMouse & Mouse Pad
MS Windows 95
Wired for Management (WfM) Compliant
Intel LANDesk Client Manager 3.31
3-Year Parts Limited Warranty with 3-Year On-site Service¹

\$1299 or \$45/mo.
36 mos. business lease²

E-4200 500 Outstanding Performer

Intel Pentium III Processor 500MHz with 512K Cache
128MB 100MHz SDRAM
VX700 .26 Screen Pitch 17" Monitor (16" viewable)
ATI RAGE 128GL 2X AGP w/16MB
13.6GB 7200 RPM S.M.A.R.T. II Ultra ATA Hard Drive
17X min/40X max CD-ROM Drive
3.5" Diskette Drive
3Com US Robotics 10/100 Ethernet Adapter with
Wake-up On LAN
7-Bay Mid-Tower Case
104+ Keyboard
MS IntelliMouse & Mouse Pad
MS® Windows NT® Workstation 4.0
Wired for Management (WfM) Compliant
Intel LANDesk Client Manager 3.31
3-Year Parts Limited Warranty with 3-Year On-site Service¹

\$1699 or \$58/mo.
36 mos. business lease²



Gateway ALR® Series Servers

Scalable servers that make
company communication simple.

ALR®-Series 7200 Workgroup Server

Intel® Pentium® II Processor 400MHz
with 512K Cache (Dual Pentium II & Pentium III
Processor Capable)

64MB PC 100 ECC SDRAM (expandable to 1GB)

9GB Ultra 2 SCSI 7200 RPM Hard Drive
(expandable to 72GB)

Integrated Intel 10/100 Twisted Pair Ethernet

17X min/40X max CD-ROM Drive

InformManager™ Server Management Software

3-Year Parts & Labor Limited Warranty
with On-Site Service¹

Year 2000 Compliant⁴

\$1640 or \$56/mo.

36 mos. business lease²

ALR-Series 7300 High-Performance Workgroup Server

Intel Pentium III Xeon™ Processor 500MHz
with 512K Cache
(Dual Pentium III Xeon Processor Capable)

64MB PC 100 ECC SDRAM (expandable to 1GB)

9GB Ultra 2 SCSI 7200 RPM Hard Drive
(expandable to 72GB)

Integrated Intel 10/100 Twisted Pair Ethernet

17X min/40X max CD-ROM Drive

InformManager Server Management Software

3-Year Parts & Labor Limited Warranty
with On-Site Service¹

Year 2000 Compliant⁴

\$2799 or \$96/mo.

36 mos. business lease²

ALR-Series 8200 Departmental Server

Intel Pentium II Processor 400MHz
with 512K Cache
(Dual Pentium II & Pentium III Processor Capable)

128MB PC 100 ECC SDRAM (expandable to 1GB)

9GB Ultra 2 SCSI 7200 RPM SCA Hard Drive
(expandable to 216GB)

Integrated Intel 10/100 Twisted Pair Ethernet

17X min/40X max CD-ROM Drive

InformManager Server Management Software

3-Year Parts & Labor Limited Warranty
with On-Site Service¹

Year 2000 Compliant⁴

\$2599 or \$89/mo.

36 mos. business lease²

LIMITED WARRANTY UPGRADES:

Upgrade to 4-hour on-site response service - our highly skilled technical support team and field engineers will respond to your call for help, identify the server problem and provide continuous support until the problem is solved.⁵

ALR® 7000 Series server, one-year, 4-hour response service, 24-hour x 7-day coverage ... **\$465⁵**

ALR 7000 Series servers, one-year, 4-hour response service, 9-hour x 5-day coverage ... **\$279⁵**

ALR 8000 Series server, one-year, 4-hour response service, 24-hour x 7-day coverage ... **\$599⁵**

ALR 8000 Series servers, one-year, 4-hour response service, 9-hour x 5-day coverage ... **\$359⁵**

Complete your solution by choosing from thousands of business hardware accessories and software at **gateway.com**

5. Call for details. Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. You may be asked to take your PC to a Gateway location for warranty service. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). ALR Server 4-hour dispatch customers: Gateway will attempt to resolve your issue remotely. If this is not possible, Gateway will dispatch a technician. Gateway cannot guarantee that your issue will be resolved in any particular time. 4-hour dispatch service is not available in all locations. See agreements for specific terms and limitations.

manufacturers can actually deliver on the promise? At Gateway, we put you want technology to do for your business. We can also assist you with click or come in.



Gateway GP-Series Professional Desktops

Powerful, network-ready PCs that simply let you open the box and get right to work.

GP6-400c Value Desktop

Intel® Celeron™ Processor 400MHz with 128K Cache
64MB SDRAM (expandable to 256MB)
4.3GB Ultra ATA Hard Drive
EV500 15" Color Monitor (13.9" viewable)
8MB AGP Graphics
17X min/40X max CD-ROM Drive
10/100 Ethernet Network Card
Business Audio with Speakers
MS Windows 95 or Windows 98
MS Office 2000 Small Business Software

\$949 or \$33/mo.

36 mos. business lease²

GP7-450 Business Performer

Intel Pentium III Processor 450MHz with 512K Cache
96MB SDRAM (expandable to 384MB)
13GB Ultra ATA Hard Drive
EV700 17" Color Monitor (15.9" viewable)
16MB AGP Graphics
17X min/40X max CD-ROM Drive
10/100 Ethernet Network Card
Iomega® Internal ZIP™ Drive
Business Audio with Speakers
MS Windows 95 or Windows 98
MS Office 2000 Small Business Software

\$1399 or \$48/mo.

36 mos. business lease²

GP7-600 Power User

Intel Pentium III Processor 600MHz with 512K Cache
128MB SDRAM (expandable to 384MB)
13.5GB (7200 RPM) Ultra ATA Hard Drive
EV910 19" Color Monitor (18" viewable)
32MB SDRAM AGP Graphics
17X min/40X max CD-ROM Drive
10/100 Ethernet Network Card
Iomega® Internal ZIP™ Drive
Business Audio with Speakers
MS Windows NT® Workstation 4.0
MS Office 2000 Small Business Software

\$2199 or \$75/mo.

36 mos. business lease²

LIMITED WARRANTY UPGRADES:

Extend your Gateway GP-Series desktop standard one-year limited warranty with on-site parts replacement to three-year on-site service ... **\$99**

CALL 1-800-846-2572	CLICK www.gateway.com	OR COME IN TO A GATEWAY BUSINESS SOLUTIONS™ CENTER Gateway Country®
-------------------------------	---------------------------------	---

© 1999 Gateway, Inc. All rights reserved. Gateway, Gateway Country and the Gateway stylized logo are trademarks or registered trademarks of Gateway, Inc. All other brands and product names are trademarks or registered trademarks of their respective companies. The Intel Inside Logo, Intel and Pentium are registered trademarks, and Celeron and Xeon are trademarks of Intel Corporation. 1. Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. 2. Leasing provided by independent leasing companies to qualified commercial customers. Lease payments based on a 36-month term. Lease terms subject to change without notice or obligation. 3. Maximum data transfer rate dependent upon variables, including particular modems with which you are communicating, telephone lines.

your business at the forefront of each system we design.
Client Care services and business lease options to



Gateway Solo® Portables
Mobility is made simple with a
wide range to choose from.

Solo® 2500SE Value Notebook

12.1" TFT Color Display
Intel® Celeron™ Processor 333MHz
32MB SDRAM (expandable to 288MB)
4GB Ultra ATA Hard Drive (expandable to 10GB)
Integrated Floppy and CD-ROM Drives
V.90 PC Card Modem¹
Microsoft Windows 95 or Windows 98
1-Year Limited Warranty¹
\$1599 or \$55/mo.
36 mos. business lease²

Solo 5150SE Presentation Portable

14.1" TFT Color Display
Intel Celeron Processor 333MHz
32MB SDRAM (expandable to 288MB)
4GB Ultra ATA Hard Drive (expandable to 10GB)
Integrated CD-ROM Drive
Thin & Light 6.5 lb. Design
MS Windows 95 or Windows 98
1-Year Limited Warranty¹
\$1899 or \$65/mo.
36 mos. business lease²

Solo 9150LS Desktop Replacement

15" TFT Color Display
Intel Pentium® II Processor 366MHz
64MB SDRAM (expandable to 384MB)
10GB Ultra ATA Hard Drive (expandable to 14GB)
Integrated DVD-ROM & SuperDisk™ Drives
Integrated V.90 Modem¹
MS Windows 95 or Windows 98
MS Office 2000 Small Business Software
3-Year Limited Warranty¹
\$3299 or \$112/mo.
36 mos. business lease²

LIMITED WARRANTY UPGRADES:

Minimize downtime on the road or in your office with an on-site limited warranty service upgrade for your Gateway Solo notebook.

Solo® 2500 and 5150 one-year on-site service upgrade	\$79
Solo 2500 and 5150 three-year on-site service upgrade	\$329
Solo 9150 three-year on-site service upgrade	\$189

communications software and communications protocols. 4. All Gateway Intel processor-based systems are qualified to carry the "NSTL Hardware Tested Year 2000 Compliant" logo because they have successfully completed the NSTL YMARK2000 test. These systems have also passed the Microsoft Millennium Year 2000 test suite. Gateway cannot be responsible for third party software that improperly sets, resets, or calculates dates. These issues are not related to the hardware and operating system, and cannot be corrected by Gateway. Complete details on Gateway's Year 2000 support can be found at www.gateway.com/year2000. 6. Technology refresh program participants, provided certain requirements are met, including credit approval, may choose to refresh their Base Unit, as defined in Lease Agreement, during the period(s) designated in the Lease Agreement. Equipment will be refreshed with the latest available model in its Product Class, as determined at Gateway's sole discretion, and will extend the lease for a term of 18 to 24 months as predetermined in the Lease Agreement and related Lease Schedule(s). Other terms and conditions apply. Leasing provided by independent leasing companies to qualified commercial customers. Lease terms subject to change without notice or obligation.



Gateway™ ALR® Series servers, GP and E-Series desktops and Solo® portables contain Intel® processors.



Additional Client Care Services

SERVICES FOR GROWING BUSINESSES:

Getting what you need is simple when you have this many choices.

Customization doesn't end once your system is configured - your Gateway Business Account Representative can advise you on finance, support and configuration services to meet your business needs. • Leasing options include the innovative Technology Refresh business lease that delivers new PCs after two years* • Client Care standard services and enhanced service plans • Custom Integration Services offering the ability to integrate unique hardware and software components that are not part of Gateway's standard product offering - all assembled, installed and tested at Gateway's manufacturing facility.

CLIENT CARE SERVICES:

We make technology simple. We make getting support just as simple.

Every Gateway server, GP-Series desktop and portable includes a suite of support services delivered by Gateway technical support teams dedicated to business clients, including: • 24x7 e-mail and telephone technical support - standard telephone support service includes hardware troubleshooting and diagnostics, assistance with configuration of MS® Windows® operating system, drivers and pre-installed application software • Online Support Center at www.gateway.com/support for interactive troubleshooting tools, tech tips and driver updates • HelpSpot™ diagnostic, maintenance and educational software on GP Series desktops • Faxback information service for sales and technical documents.

NETWORK SUPPORT SERVICES — PREMIUM IT SUPPORT:

We'll help you get the support you need, when you need it.

SYSTEM MANAGEMENT SERVICE: Designed for businesses with no dedicated in-house IT support staff. All-inclusive, hardware, NOS software and network infrastructure support service. Provides dedicated toll-free, unlimited access to Gateway's advanced technical support team. Network and desktop operating system support, remote diagnostics, limited third-party support coordination and an annual network audit and consultation.

Annual agreement... \$1,799

NETWORK OPERATING SYSTEM SERVICE: Ideal for businesses with their own IT resources but requiring remote support for their network operating system. Unlimited access to Gateway's advanced technical support team. Multiple site support. Dedicated toll-free phone line for rapid access 24 hours a day, 7 days a week.

Annual agreement... \$799

Customization Services

Gateway's efficient Custom Integration Services offers businesses a wide range of custom-built solutions for volume purchases, including software and hard drive image loading, asset tagging and labeling, hardware integration and more. To learn more, call a Business Account Representative today.



CALL

1-800-846-2572

CLICK

www.gateway.com

OR COME IN

TO A GATEWAY BUSINESS SOLUTIONSSM CENTER
Gateway Country[®]

Simple proof that simplicity works.

PC World's Top 20 Power & Budget Desktop PCs,
Top 10 Notebook & Home PCs - Jan-July 1999

PC Computing A List E-3200
450 Desktop Workhorse Category - June 1999

PC World's Top 100 E4200 500 #2 Top 20 Power Desktops - June 1999
PC World's Top 100 GP6-400 #2 Best Buy Top 20 Budget Desktop - June 1999
PC World's Top 100 Solo 5150LS #2 Top 5 Power Notebooks - June 1999

Windows Magazine WinList Award \$150LS
General Business Notebook - June 1999
Windows Magazine WinList Award 4200
500 Corporate Desktop Category - June 1999

Continued from page 274

impressive selection of special-interest forums, ranging from property management to biotech (see **FIGURE 2**).

workplace: Use this keyword when you want to post a résumé, read messages about workplace issues, or network.

business news: Visit the forums of such popular sources of business news and information as *Business Week*, the *New York Times*, and the *Chicago Tribune*.

Computer help and software. Use the following keywords to access software libraries, obtain troubleshooting help, and get advice on how to use AOL.

computing: This entry takes you to AOL's Computing Channel menu, where you'll find hardware and software reviews, computer-related news stories, and links to other computing information.

help desk: Read tips and tricks, browse the message boards, and find links and features related to different products.

pc users guide: Type this to access solutions to basic PC problems and questions.

members helping members: This keyword links you to the best forum to visit if you're having problems using AOL's software or connecting to the service.

neighborhood watch: Read about scams and viruses, and complain about spam.

download software: Looking for shareware, demos, or free downloads? This entry gets you there.

More search tips. For help in accessing areas dedicated to more obscure interests, heed the following search tips:

- Click the **Keyword** button (located beneath the Weather icon on the AOL toolbar, click **Keyword List**, and scroll through

the list of keywords to discover forums and resources in your area of interest.

- Many magazines host lively business-oriented forums that are tucked in the remote precincts of their message boards.
- Check forums devoted to any hobby that's related to your business, and you'll probably find a message board or two frequented by entrepreneurs. (In the Gardening group, for example, you'll find a message area devoted to landscape design professionals.)

SHARE EUDORA MAILBOXES

IF YOU USE TWO PCs (say, a desktop and a laptop) to collect e-mail,

you might need to copy messages from one to the other. Eudora stores and catalogs the contents of each of its mailboxes in two files: an .mbx text file that contains all the messages in a particular mailbox, and a binary .toc (table of contents) file. To copy the contents of a mailbox from one computer to the other, you must copy both types of files.

Suppose you have a mailbox named Budget that exists on both your desktop and your notebook, and you want to transfer mail from the former to the latter. Copy *budget.mbx* and *budget.toc* from the desktop system's c:\eudora folder onto a floppy—or e-mail them to the other system. Rename them *budget2.mbx* and *budget2.toc*, respectively, and copy them to

c:\eudora on the target system. Close Eudora, and then reopen it. You should see a Budget2 mailbox listed in its mailbox directory.

Open the Budget2 mailbox. Press **Ctrl+A** or select **Edit>Select All**. Right-click the selected messages, and pick **Transfer** from the pop-up box. Then move all the messages into the main Budget mailbox and delete the Budget2 mailbox.

DOWNLOAD OF THE MONTH

Catalog Web Pages With SurfSaver

IF YOU DO A LOT of research on the Web, SurfSaver by AskSam Systems offers a convenient method of saving Web pages for future use. This \$30 shareware plug-in integrates with your browser, enabling you to save a page either by right-clicking it and selecting **SurfSaver Save** or by clicking the **SurfSaver** button in the toolbar. A pop-up box lets you save the

page in a designated folder along with keywords and comments. SurfSaver saves both graphics and links, so when you look at them offline, they look exactly the way they did on the Web.

To peruse saved pages, right-click in your browser window or click the **SurfSaver** button and browse folders and lists of saved pages. You can also search the full text of pages. SurfSaver works with versions 4.0 and later of Internet Explorer and Navigator. Download it from www.asksam.com or from FileWorld.

Batch-forward several messages. Forwarding a slew of messages is a pain because you have to open each message before you can address and send it. But here's a painless work-around: Create a new mailbox (select **Mail>New**). Then move each of the messages you want to forward into that mailbox by right-clicking the message and selecting **Transfer**. When you're finished, close Eudora. Next, in your text editor, open the file bearing the name of that mailbox followed by an .mbx extension, as in *budget.mbx*, and you'll see all your messages, one above the other. Copy and paste this file into an e-mail message, and mail it to your recipient.



Find files from this article at www.fileworld.com/magazine. Send your questions and tips to judy_heim@pcworld.com. We pay \$50 for published items. Judy Heim is coauthor of *The Quilter's Computer Companion* (No Starch Press, 1997).



FIGURE 2: WHEN IT COMES TO EMBROIDERY, no one handles the facts like a professional. Find a flurry of your peers at AOL's forums.

Say good-bye to typos ♦ Move graphics smoothly ♦ Get the doc view you want

Hyperlink to Jump Anywhere in a Document

WHEN YOU THINK of hyperlinks, you probably think of Web pages, right? But if you're using Word 97 or 2000, or WordPerfect 8, you can think again. The same interactive navigation aids that you use to hop around in cyberspace can come in very handy when you design a document intended for reading on a computer screen. They can help your colleagues and readers quickly skip to specific sections of the document, including elements such as tables, charts, or graphics.

Creating such interactive documents involves just two steps: First, you create bookmarks to text and objects you want to link; second, you set up the hyperlinks to jump to those bookmarks. You can bookmark anything you like in a document, then link to it. Here's how:

Word 97 and 2000:

Select the text (for example, a chapter heading) or object you want to bookmark. If it's a graphic, click it once; if it's a table, click in the upper left cell, select **Insert>Bookmark** or press **<Ctrl>-<F5>**, and type a distinctive name for the bookmark (such as "Figure1," "Table1," or "Chapter1") in the 'Bookmark name' field of the Bookmark dialog box. No spaces are allowed in bookmark names, and there's a 255-character limit. To finish, click **Add**.

To create a hyperlink to a bookmark, type the desired text for the link, such as "See Figure 1." Then select the text, and choose **Insert>Hyperlink** or press **<Ctrl>-K**. In the Insert Hyperlink dialog box, click **Browse** (Word 97) or **Bookmark** (Word 2000). Select the desired bookmark from the list that appears, and then click **OK**

twice to return to the document.

Note: In Word 2000, you'll also have other choices for the jump, such as to the top of the document or to headings.

Here's how to use hyperlinks in Word:

- To jump to a hyperlinked bookmark, click the reference to the link (for example, "See Chapter 3").

- To return to your previous cursor location, click the back arrow on the Web toolbar.

- If the Web toolbar isn't visible, right-click any toolbar and select **Web**.

WordPerfect 8:

To bookmark text or an object, position the cursor where you want the bookmark. You can't bookmark images in WordPerfect, so position the cursor near the image. Select **Tools>Bookmark**, and click **Create** in the Bookmark dialog box; then, in the Create Bookmark dialog box, type a distinctive name for the bookmark and click **OK**.

To create a hyperlink to a bookmark, type the appropriate reference text, such as "See Table 2." Select the text and then select **Tools>Hyperlink**. In the Hyperlink Properties dialog box, click the arrow to the right of the Bookmark field, and select the bookmark for the link. Click **OK**.

To use hyperlinks in WordPerfect 8:

- To jump to a link, click its reference.
- To return to the previous cursor location, click the back arrow on the Hyperlink Tools toolbar, or press **<Ctrl>-G** and double-click **Last Position** in the Go To dialog box.



Dump AutoComplete in Word

WORD'S AUTOCOMPLETE feature—offering suggestions for words before you complete typing them—in 97 and 2000 may be useful for some users, but the constant parade of yellow "tooltips" rapidly becomes an annoyance for fast typists. Fortunately, you can easily shut this feature down, if you don't want it. Here's the drill: Select **Insert>AutoText>Autotext**. In the AutoCorrect dialog box, under the **AutoText** tab, select **Show AutoComplete tip for AutoText and dates** and uncheck the box. Click **OK**.

- If the Hyperlink Tools toolbar is not visible, right-click any toolbar and select **Hyperlink Tools**.

FLAG COMMON TYPOS

I FREQUENTLY MISS the *r* in the word *your* when typing, but the spelling checker doesn't catch this error because it sees *you* and thinks it's spelled correctly. Is there a way to automatically mark every occurrence of the word as I type, so I can easily proofread my documents before printing them?

Matthew Brenengen, St. Paul

I SEE THAT SORT of error regularly, along with misspellings of homonyms such as "its" and "it's"; "to," "too," and "two"; and "their," "there," and "they're." It is ▶

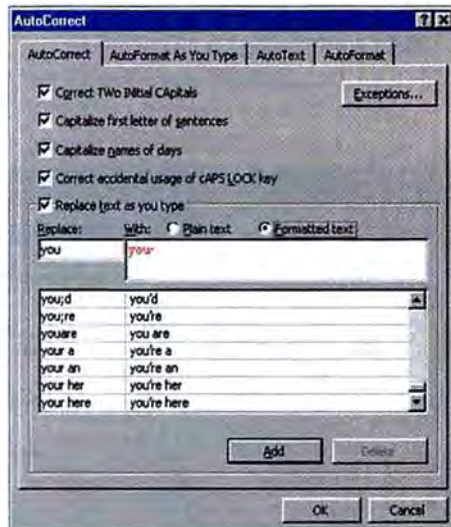


FIGURE 1: SET UP Word's AutoCorrect to highlight correctly spelled words you often type by mistake.

Dongle caught in your zipper?

For info on network connectivity for Win CE handheld devices visit www.xircom.com/hhmc

Computing on the move can be painful. When you break or lose your dongle, you're cut off. That'll never happen with the family of RealPort™ Integrated PC Cards. There's nothing to break. Nothing to lose.



RealPort™ The Integrated PC Card

Nothing to Break. Nothing to Lose.

After years of dealing with external LAN and modem cables, we came up with a better way. We got rid of them.

With RealPort Integrated PC Cards, you will reduce your downtime and end your

worries and frustrations over lost dongles or broken pop-out jacks.

The revolutionary RealPort Integrated PC Card family provides you with:

- The most reliable cable-free connectivity available
- The fastest 10/100Mbps Ethernet and 56K modem speeds supporting V.90 and K56flex standards
- Flexible options including LAN+modem, LAN-only and modem-only cards
- Wireless GSM and AMPS cellular capabilities for anytime, anywhere communications

Don't get caught without one. Visit our Web site or call for information regarding Xircom's Evaluation Unit Program.

www.xircom.com/pcworld
toll free: 877-RealPort (877-732-5767)

Xircom

Get mobile. Stay connected. Go places.

possible to automatically flag words you commonly mistype in Word 7, 97, and 2000 and in WordPerfect 8. Getting set up takes a little time, but once the arrangement is in place, those errors will jump out at you during proofreading.

Word 7, 97, and 2000:

Click **File•New** to open a fresh, blank document. Type a short sentence containing the word you want to flag. Double-click the word to highlight it, and select **Format•Font**. In the Font dialog box, scan the drop-down **Color** or **Font color** list, select a color, and then click **OK**.

Leave the word highlighted, and select **Tools•AutoCorrect**. Click the **AutoCorrect** tab, if it's not active. Make sure the **Replace text as you type** check box is marked. Type the same word in the **Replace** field of the AutoCorrect dialog box, click **Formatted Text** to mark the option, and then click **Add** and **OK**. (See **FIGURE 1**.)

Now, whenever you type the problem word, it will appear in color as soon as you press the spacebar or a punctuation character. As you proofread, make any corrections needed, then double-click the word and press **<Ctrl>-<Space>** to remove the word's color formatting. (Hint: If you choose red as the color, it will print as black on any monochrome printer; this means you can skip the step of reverting the color to black.)

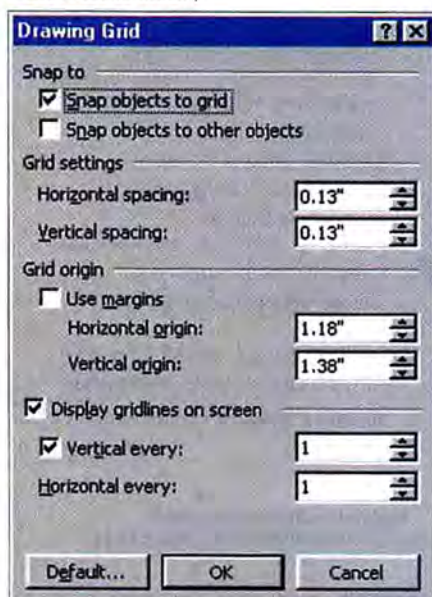


FIGURE 2: TO ALTER grid settings for graphics in Word, select **Draw•Grid** on the Drawing toolbar.

WordPerfect 8:

Click **File•New** to open a new document. Type a short sentence containing the word you want to flag as potentially incorrect. Double-click the word, then select **Format•Font**. In the Font dialog box, click the **Text color** button, select a color, and click **OK**. Leave the word highlighted, and select **Tools•QuickWords**. Make sure the **Expand QuickWords when you type them** box is marked. Type the same word in the **Abbreviated form** field of the QuickCorrect dialog box. Click **Add Entry**.

From now on, whenever you type the word you've set up, it will appear in color as soon as you press the spacebar or a punctuation character. While proofreading the document, press **<Alt>-<F3>** to open the Reveal Codes window. Make all necessary changes in flagged words, click the color code button preceding the word in the Reveal Codes window, and press **<Delete>** to revert to black type.

MOVE GRAPHIC OBJECTS SMOOTHLY IN WORD

THOUGH YOU don't see it on the screen, Word 97 and Word 2000 superimpose an invisible grid on your page. All graphics objects automatically align themselves to this grid, which can sometimes make repositioning an object exactly where you want it a bit difficult. But if you hold down **<Alt>** while you click and drag an object, you override the grid settings and can place the object anywhere on the page.

You can also change such grid settings as horizontal and vertical sizing to suit your needs. To do this, display the Drawing toolbar (if it's not already visible) by right-clicking any toolbar and selecting **Drawing**. Click the **Draw** button on the toolbar, then select **Grid** from the pop-up menu. This will display the Snap to Grid (Word 97) or Drawing Grid (Word 2000) dialog box (see **FIGURE 2**). In this box you can change the settings for horizontal and vertical spacing, as well as for the horizontal and vertical origins of the grid (these control how close to the edge of a page you can position graphics). In Word 2000, you can display the grid on your screen, to make aligning graphics objects even easier. The grid won't print.

DOCUMENT VIEWING KEYS

WORD OFFERS YOU a number of ways to view your document. For example, **Print Layout** view displays the document as close to its actual appearance on the page as possible. **Outline** view shows a heading-based outline, for quick rearrange-

To switch to...	...press
Page/Print Layout view	<Ctrl>-<Alt>-P
Outline view	<Ctrl>-<Alt>-O
Normal view	<Ctrl>-<Alt>-N
Master Document view	<Ctrl>-M

FIGURE 3: USE THESE SHORTCUT keys to switch document views quickly in Word.

ment and reference. **Normal** view shows the page minus certain fancy formatting and layout functions, thereby speeding up the editing process. **Master Document** view combines the outline view with links to subdocuments stored in separate files for easy management of complex documents. Use Word's handy shortcut keys—listed in **FIGURE 3**—to switch quickly from one view to another.

A NEW VIEW IN WORD

IF YOU LIKE a particular view mode when editing in Word, you probably find it frustrating when Word starts up a new document in a different mode. You can always open a new document in the view you want with the **File•New** command by creating a short macro. Select **Tools•Macro•Record New Macro**. Type **AutoNew** in the Macro name field of the Record Macro dialog box, then click **OK**. Select **View**, then select your preferred view mode from the menu. Click the **Stop Recording** icon on the Stop Recording toolbar. Now, whenever you create a new document, Word will automatically switch to your preferred view mode, regardless of other settings in the program.

We welcome your questions and tips and pay \$50 for published items. George Campbell (george_campbell@pcworld.com) is a contributing editor for PC World. Reach him via his Web page at www.osomin.com.

**THE BEST DEAL
ON A NEW SYSTEM
MAY BE UPGRADING
THE ONE
YOU ALREADY OWN.**

KINGSTON® TURBOCHIP® PRODUCTS
are designed as plug-and-play upgrades that extend the life of your desktop or mini-tower by increasing system performance by as much as 280%. Call your Kingston sales representative at 800-259-8969 to find out why the best deal on a faster system is upgrading the system you already own.



AS LOW AS
\$249

TURBOCHIP 366

Upgrades AMD® and Pentium® based systems running 166MHz and up with the latest 3D multimedia capabilities and 366MHz of processing power.



AS LOW AS
\$199

TURBOCHIP 233

Upgrades most Pentium based systems running 75MHz and up with genuine Intel 233MHz MMX Pentium processing power.



AS LOW AS
\$108

TURBOCHIP 133

Upgrades most 486 based systems to 133MHz of 5x86 processing power with built-in coprocessor and 16Kb internal cache. TurboChip 133 is rated at Pentium 75-plus performance.

Kingston
TECHNOLOGY
PERIPHERALS



17600 Newhope Street, Fountain Valley, CA 92708 USA (714) 435-2600 Fax (714) 438-1879
© 1999 Kingston Technology Company. All rights reserved. All registered trademarks and trademarks are the property of their respective owners.

Circle 133 on card or go to www.pcworld.com/productinfo

Add Formatting Pizzazz to Your Worksheets

DULL ROWS OF NUMBERS may not help you make a point (say, when you're trying to impress your boss with your spectacular closing ratio). What you need is a jazzy graphic that shouts "Check me out!"

As pointed out by Peter Tesler of Brooklyn, New York, Excel 97 or later can help. First, click the *AutoShapes* button on the Drawing toolbar, select the shape you want to use by clicking it, and click in the formula bar. Then enter a cell reference such as `=B$14` and press **<Enter>**. In our example, the contents of cell B14 will then be displayed inside the AutoShape (see **FIGURE 1**). If the content of the referenced cell changes, the graphic will reflect the change. Remember, AutoShapes offer formatting options that are not available within the standard Format menus.

To make an AutoShape even snazzier, double-click the graphic to access the Format AutoShape dialog box. From there, you can apply formatting changes—for instance, adjusting the vertical or horizontal positioning, changing the font, adding color, or making the text bold.

CHECK FOR REPEATING VALUES IN A RANGE

SOMETIMES YOU just don't want data to repeat itself. On an order form or an inventory sheet, for instance, you may not want a part number noted in one cell to repeat in another cell. When you use Excel's Data Validation feature, you can

prevent a value from appearing more than once in a range. The range A2:A20 in **FIGURE 2**, for example, requires unique part numbers. If the user enters a number that already exists, a message box pops up and asks for a different one.

To create a similar message box for your worksheet, start by highlighting the range of cells for which you need to punch in unique entries (here, the correct range to select is A2:A20). Then choose *Data > Validation* and click the *Settings* tab. Next, pick *Custom* from the Allow drop-down list. The Custom option requires a logical formula that will return either 'True' or 'False'. In our example, we need a formula that will return 'True' only if the content of the cell does not match one that already exists in the range. The COUNTIF function will do the job. Type the following formula into the Formula field: `=COUNTIF(A2:A20,A2)=1`.

This formula counts the number of cells in range A2:A20 containing the same value that appears in cell A2. If the count is 1, the formula returns 'True'; otherwise, it returns 'False'. Notice that the first argument for COUNTIF is an absolute reference to the entire validation range. In contrast, the second argument is a relative reference to the upper left cell in the validation range (it will be adjusted for each of the other cells in the range).

Next, to create the warning that appears in a pop-up message box



Print Selected Rows in 1-2-3

OFTEN A SPREADSHEET contains rows of calculations that nobody needs to see but you. In Excel, you can hide the rows you don't want to print. 1-2-3, however, lets you suppress printing of selected rows without hiding them: If you insert a vertical-bar character (|) into a cell in the first column of a print range, that row will not print. One way to do this is to create a new column to the left of the report, give it a very narrow width, then type a vertical bar into the cells for the rows you don't want printed.

when a duplicate value is entered into the selected range, click the *Error Alert* tab in the Data Validation dialog box. For the Style, select *Stop* (this option rejects existing values). Enter a title for the message box (such as **Duplicate Data**) and type your error message. Now click **OK** and try it out. You'll find that you can enter any data into the validation range, but if you type an entry that already

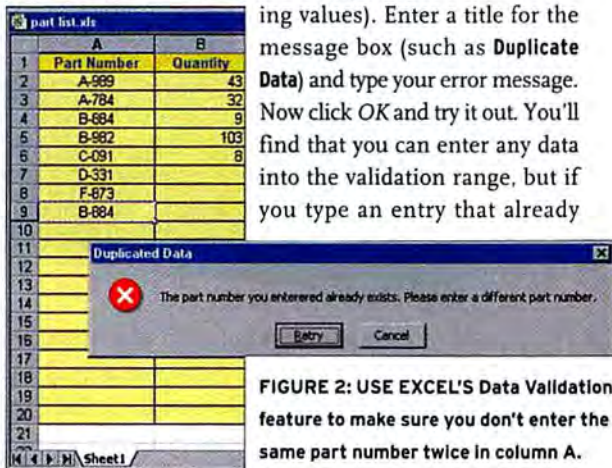


FIGURE 2: USE EXCEL'S Data Validation feature to make sure you don't enter the same part number twice in column A.

exists, you'll get the warning message. Click *Retry* to edit the cell's contents or choose *Cancel* to clear the cell.

While Data Validation is a useful feature, it contains a potentially serious design flaw. If you copy a cell and paste it to a cell that uses the feature, the Data Validation rules are wiped out. This problem also applies to cells that use Conditional Formatting. You'll need to keep this in mind when you're cutting and pasting in mission-critical applications.

Send spreadsheet-related e-mail to john@j-walk.com. We welcome questions and tips and pay \$50 for published items. PC World Contributing Editor John Walkenbach is the author of *Excel 2000 Bible* (IDG Books, 1999) and maintains The Spreadsheet Page (www.j-walk.com). ■

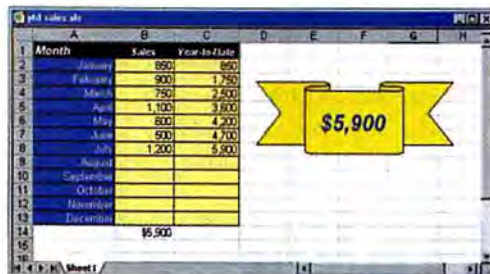


FIGURE 1: USING AN AutoShape linked to a cell gives you access to formatting options otherwise unavailable.

Write On.

(and on, and on, and on).

Make a full
CD in 20
minutes!

Twice as
fast as the
HP CD-Writer
Plus 7510e!

Now 4x4x20! Parallel Port!

The Convenience Of A Parallel Port Drive With The Speed Of An Internal CD-RW — Cool!

- **Easy to install** — Connects to your parallel printer port.
- **Shareable** — Use with multiple PCs and portables.
- **Fast** — Write and rewrite at 4X speeds with virtually any Pentium.

All This Plus Far Out Performance!
But Don't Just Take Our Word For It...

"Best CD-Rewritable Drive."

PC World

"Simple installation; breezy write speed."

PC/Computing

"Good enough to join our WinList."

Windows

(4x2x8 model also available)

backpack cd-rewriter 



MicroSolutions
The port•ability leader.

Ph: 800-890-7227 (US and Canada)
or 815-756-3411, Fax: 815-756-2928
Internet: www.micro-solutions.com

CDW - 800.736.4239 • CompUSA - 800.COMPUA • CompUSA Direct - 800.514.4727 • Fry's Electronics • Global Computer Supplies - 800.845.6225 • Micro Center - 800.743.7537
Micro Warehouse - 800.367.7080 • Midwest Micro - 800.413.9856 • Office Depot - 888.463.3768 • PC Connection, Inc. - 800.800.5555 • PC Zone - 800.258.2088

Circle 159 on card or go to www.pcworld.com/productinfo

Use hardware profiles ♦ Enable CMOS virus protection ♦ Test phone-line quality

Configure Your System for Faster Boot-Up

ANYTIME YOU ADD OR remove hardware from your PC, you open the door to all kinds of trouble. Long waits while Windows adjusts its settings, IRQ conflicts, and outright crashes are common occurrences, notwithstanding Plug and Play technology's promise to make life easier. But at least Windows' hardware profiles simplify changing your system's hardware.

A hardware profile is a list Windows generates to help it quickly set up your computer's hardware each time the OS starts. On start-up, Windows looks for the hardware profile that was last used, compares it to the current hardware configuration, and (if the two match) launches with that profile. Notebook users frequently use hardware profiles immediately after they add or remove pointing devices, keyboards, and other computing accessories.

If the hardware profile doesn't match your system's configuration—for instance, when you've just slipped your notebook into a new docking station equipped with a DVD-ROM drive or an ethernet card—Windows looks for an existing hardware profile that does match. If it can't find one, Windows creates a new profile by identifying and installing each new device. This takes a while.

You can avoid the time-consuming identification process by keeping extra profiles on hand. Sometimes you have to create these yourself, but not always. With a perfect Plug and Play system (Windows 98 comes close to this) there's no need for hardware profiles—the system will automatically recognize and configure every-

thing. And if you have a notebook and docking station with a Plug and Play BIOS that works flawlessly, Windows will automatically generate and load a second profile. Plus, you may even be able to hot-dock your system—that is, add

hardware components to it while it's running, without having to reboot.

But many systems do not fully support Plug and Play. If that sounds like your system, you'll have to manually create a second hardware profile.

BUILD A NEW PROFILE

START UP YOUR PC in its original hardware configuration—without any peripherals. Then right-click the *My Computer* icon on your desktop, select *Properties*, and choose the *Hardware Profiles* tab (see **FIGURE 1**). Your current hardware profile—which is most likely named 'Original Configuration'—should be listed in the center box along with any other hardware profiles for your computer.

To create a new profile, you need to make a copy of the Original Configuration profile. Do this by clicking the *Copy* button at the lower left of the dialog box. A second dialog box will appear, allowing you to enter the name of your new profile. We'll call ours External DVD Configuration, but you

Check Notebook Power

DO YOUR LAPTOP'S batteries give out before you think they should? Or do they falsely alert you with a panic-inducing 'Low on power' message? The problem may not be with your batteries or your notebook, but with power-hungry software. Intel's Power Monitor utility puts a small display on your desktop and analyzes a program's power needs as that program is being used. You can download the file either from Intel at www.intel.com/ial/ipm, or from PC World Online's FileWorld.



can use any name that distinguishes this profile from others you already have.

Once you've created External DVD Configuration, you need to customize it as your alternative hardware configuration. To do that, you'll have to restart your PC. Windows will prompt you during start-up to choose a profile. Select *External DVD Configuration*. Now connect the new hardware—in this case, the external DVD-ROM drive. Windows should detect the new hardware automatically. To make sure it has found and registered your new device, run the *Add New Hardware* wizard from Control Panel. Since External DVD Configuration is now the active hardware profile, any new device you add to your PC will be registered in that profile.

You can also remove devices from a profile if you no longer want them to appear in it. Right-click *My Computer*, click the *Device Manager* tab, and double-click



FIGURE 1: CREATE NEW SYSTEM HARDWARE PROFILES as your computer's configuration changes.

the device you want to remove. In the 'Device usage' section at the bottom of the General tab, place a check in the *Disable* in this hardware profile box. A red X over a device's icon in Device Manager indicates that it's disabled (see **FIGURE 2**).

PROFILES IN TROUBLESHOOTING

DISABLING A DEVICE is also a handy way to diagnose hardware problems. Suppose you suspect the network card in your desktop PC—or its driver—is conflicting with some other part of your computer and causing intermittent system crashes. Instead of removing the network card and uninstalling its drivers, try disabling the card (see **FIGURE 3**) and see if the problem persists. If it does, simply re-enable the



FIGURE 2: AFTER YOU'VE DISABLED a device in Device Manager, a red X appears over its icon.

card and focus your attention elsewhere.

Hardware profiles also provide you with an effective, hassle-free way of testing whether or not new components are compatible with your system. By installing the new internal or external device into a second hardware profile, you can use it for however long you want while waiting for bugs or conflicts to surface. If you experience no such problems, you can return to your original hardware configuration and solve the problem at your own pace. And if no problems arise, you can simply delete your original profile; Windows will then automatically use the new one.

FREE FIRST AID?



MY CMOS SETUP program includes a menu choice for a free, built-in virus detection program. Should I buy a utility like Norton AntiVirus anyway?

Norman Aiello, New York City
NO DOUBT about it: Spend the money. There's simply no substitute for an updated virus-checking utility. Most CMOS virus checkers look only for viruses that reside in the master boot record of your computer's hard disk. They can't detect viruses that live in executable programs, in Word macros, or in other types of files. Moreover, they'll overlook viruses that have been created after that version of CMOS was issued.

This doesn't mean that master boot record viruses are no big deal. The MBR contains the hard disk's partition table, which tells the computer how data is organized on the disk—such as where and how big the C:, D:, and other drives are. And if a virus corrupts or destroys that information, you can permanently lose all the data contained on the disk.

While you're in your CMOS setup program, check to see whether your computer's BIOS supports another very effective MBR protection tool: A menu choice typically found under the Security menu—called 'Fixed disk boot sector' or something similar, depending on your brand of BIOS—prevents anyone or anything from altering the MBR. Consequently, enabling this option should effectively safeguard your system against boot sector viruses. But remember, locking the MBR also carries a serious disadvantage: You won't be able to format your hard disk or adjust the disk's partitions unless you first disable the write protection.

WHAT'S MY LINE?



I JUST MOVED into a small town in the mountains and now work in telecommuter heaven. But data transfers with my V.90 56-kbps modem are definitely slower here. Sometimes I can't get a connection at all. Is there any way I can test the quality of my telephone line?

Cheri Gordon, Grass Valley, California



FIGURE 3: YOU CAN DISABLE hardware in selected profiles for quicker boot-ups.

IN GENERAL, telephone-line quality is very good in the United States. But poor connections do exist in some rural areas. And poor line quality can dramatically affect modem performance.

To determine whether poor line quality is responsible for your modem's slow performance, do the following. First, if you have other devices connected to your modem's telephone line, such as a fax machine or other telephones, remove them and see if the situation improves. Extra wire from other devices can degrade the modem's signal, and cheap phones can add "noise" (basically an extraneous signal) to the line.

Try attaching a phone to the modem line, pick up the receiver, and listen while you dial a single digit. If you hear static after the number's tone, you may have excessive line noise. If you do, call your telephone company and request a repair.

Finally, you can test your local line's suitability for 56-kbps transfer speeds by using a free line test service from 3Com. You'll find instructions on how to connect and what to look for at www.3com.com/56k/need4_56k/linetest.html.



Find files from this article at www.fileworld.com/magazine. Send your questions and tips to kirk_steers@pcworld.com. We pay \$50 for published items. Kirk Steers is a PC World contributing editor.

Connect Two or More PCs

YOU HAVE TWO OR more Windows 9x systems in your office or home. They live together but they aren't on intimate terms because you are terrified of networking them. Don't fret—you're not the only PC owner who doubts their ability to make this relationship work.

But creating a network isn't as difficult as you may think, and the advantages are worth the effort. A simple peer-to-peer network, in which each PC can act as a server to the others, enables systems to share files, printers, and—given the right software—an Internet connection.

Wireless networks may be simpler, but traditional wired ethernet networks are faster (10 or 100 megabits per second) and more expandable. A peer-to-peer network requires a network interface card and cable for each PC, a hub (that is, a multiported device to which all the PCs connect), network drivers, and the network software built into Windows 9x.

While you can buy the pieces separately, many vendors sell convenient starter kits, complete with the equipment and instructions for hooking up two or three PCs.

The exact steps vary by vendor, but here's an overview of the process.

Stan Miastkowski is a contributing editor for PC World.

THE TOP DOWN

Benefits: share files, folders, printers, and Net connections

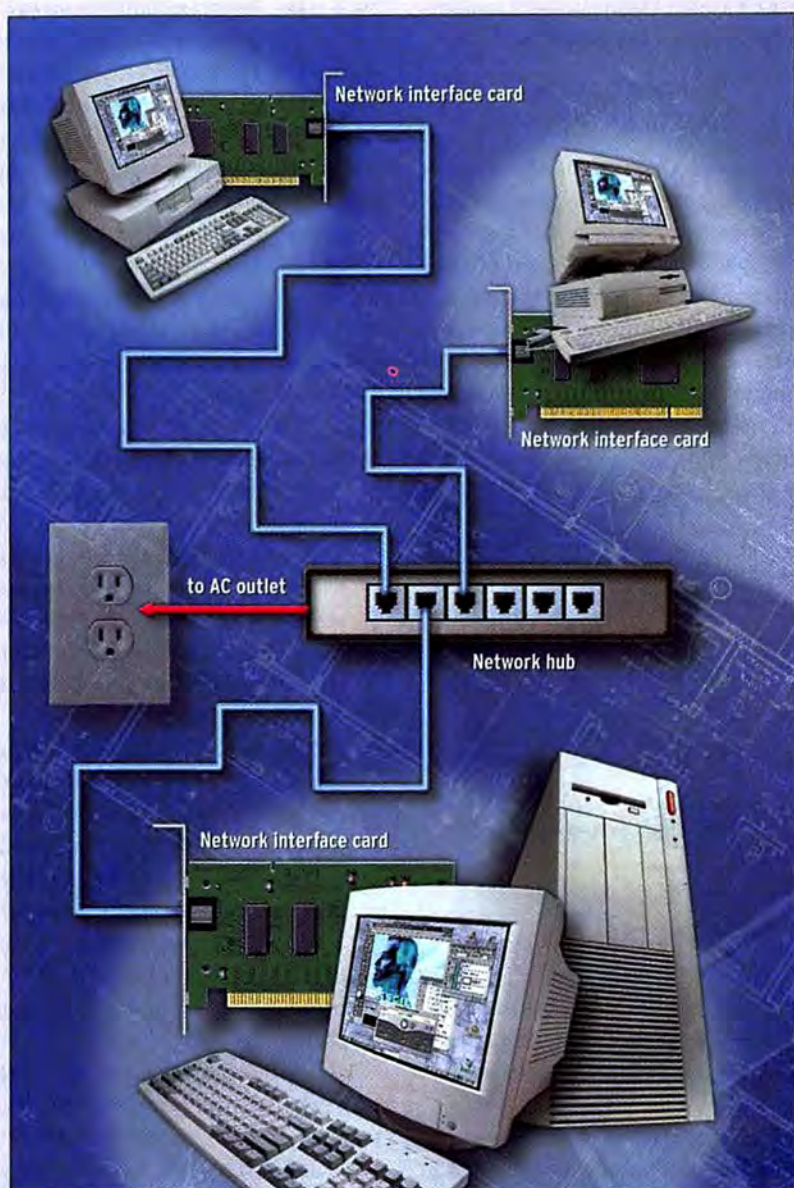
Cost: \$50 to \$100 per PC

Time required: approximately 30 to 60 minutes per PC

Equipment required: a network card and cable for each PC, a network hub, network drivers, Windows 95/98 CD-ROM

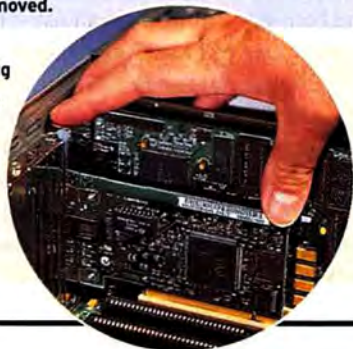
Expertise level: intermediate

Vendors: 3Com (www.3com.com), D-Link (www.dlink.com), Intel (www.intel.com), NetGear (netgear.baynetworks.com/products/start.shtml), Sohware (www.sohware.com)



1 Plan the network layout. The network hub acts as the network data traffic cop, so you'll need to place it at a location central to your PCs and near an AC outlet. You'll also need to ensure that the cables you'll be plugging into each of the hub's ports are long enough to reach the appropriate PCs and won't get stepped on or moved.

2 Install the cards. Turn off each PC and unplug it from the wall. Consider wearing an antistatic wrist strap to prevent electrical charge damage to the cards. In each PC, find a free, matching slot (either ISA or PCI), remove the metal cover in back of the slot, insert the card, make sure that it's secure, and fasten it with a screw.



3 Hook up the cables. Plug a network cable into the rear of each PC, run the cable from the PC to your hub, and plug the cable into one of the hub's ports. When all the cables are connected, plug the hub into its AC socket and turn it on, if necessary.

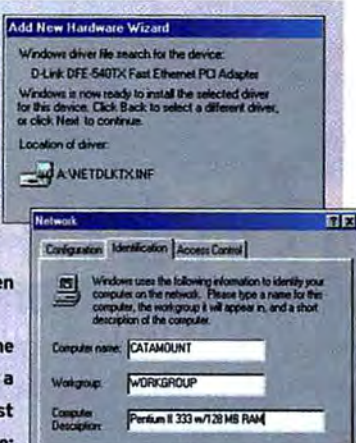


4 Install network software. Plug in your PC and turn it on. Windows 9x should detect the new network card and ask you to locate the card's software. The exact set of steps you'll need to perform differs slightly depending on the version of Windows you have, so read the on-screen instructions carefully. Most network cards or kits include a driver on a floppy disk or CD-ROM. Point the OS to the proper drive.

A number of screens will appear as drivers load. When prompted, insert your original Windows 9x CD-ROM.

At some point, you'll also have to enter a unique name for the computer (to identify it to the network) and a workgroup name, for which a good choice is usually just "workgroup". Give every PC the same workgroup name; otherwise, the systems won't be able to recognize each other on the network.

When prompted, restart your PC.



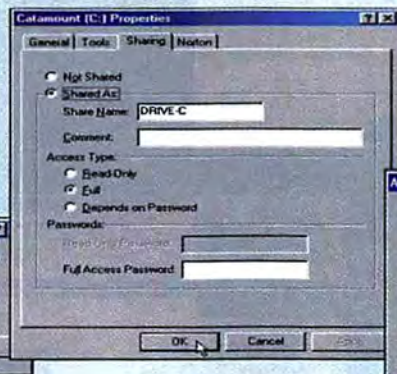
5 Choose a network password. After restarting, Windows should prompt you to supply your network user name and password. Use your name (or the name of the computer) as the user name. If you don't want to use a password, just press <Enter>.



6 Share and share alike. If you want other PCs on the network to have access to your PC's files or to its printer, you must enable sharing. First, right-click the *Network Neighborhood* icon on your desktop, choose *Properties*, click the *File and Print Sharing* button, and check the appropriate box for files and/or printers. Click *OK* twice. At this point, Windows may ask you to reinsert its original CD-ROM. If so, it will copy the appropriate files from the CD-ROM and then prompt you once more to restart.

Next, to allow file access by other PCs, you'll need to mark the drives and directories that you want to share. Double-click *My Computer*, right-click the icon of the drive or folder to be shared, select *Sharing*, click the *Sharing* tab, and fill in the appropriate blanks.

If you'll be using a printer elsewhere on the network, now is the time to set it up. In *My Computer*, open *Printers*, then click *Add Printers* and follow the on-screen directions to choose a network printer. If you don't know the path to the network printer, use the *Browse* button to find available printers on the network.



7 Install optional software. Most network starter kits may come with optional software, such as an Internet-sharing package that enables two or more PCs to share the modem and Internet connection of one PC. Insert the CD-ROM that came with the kit, and follow the directions.

If you have problems when you try to use your network, first recheck all your connections. If they are all properly connected but the PCs can't see each other, your next move is to make sure that you have correctly enabled sharing (reread step 6 for details on how to proceed). Some network cards come with diagnostic utilities. If yours does and the previous troubleshooting steps haven't worked, run the utilities. If you still don't have any luck, call tech support.



PC Mail

Visit pcmall.com

For the ultimate online shopping experience!

Register at pcmall.com for our weekly e-mail specials and receive a **FREE** gift!



PC Mail is your
"Best Place to Buy
Multimedia Products"

Find exactly what you need quickly and easily. You'll save time, money and frustration when you shop at PC Mail. It's the best way to shop for computer products!

Browser-Friendly!

Fast page load times and intuitive Interface. It's easy and fun to use!

Value!

Web-only specials with great new deals daily. Prices updated by the second!

Unparalleled Product Selection!

Choose from over 50,000 products, from 20 warehouses nationwide!

Reliable!

Secure ordering and online status checking let you know your order is processed and on the way.

Informative!

Thousands of product reviews from leading industry magazine publishers like Ziff-Davis and IDG give you the information you need to make the best purchasing decision.

Timely!

Sign up for free e-mail alerts that let you know about hot offers as they happen.

Concise!

Compare product prices and features in an easy-to-use grid format on more than 50,000 products online.

E-Commerce Leader!

Ranked in the Top 100 Hottest Internet Companies by Business2.0!

Safe!

PC Mail utilizes state-of-the-art SSL encryption technology to protect your confidential information. Shop with confidence! PC Mail is an AOL and CNET certified merchant.



Home page
The PC Mail home page is where to find the day's special offers, featured products, contests and more!



Detailed Product Information
We provide you with complete descriptions and all specifications to help you make the best purchasing decisions!



Product Pro
Use Product Pro to quickly find the item that exactly matches your needs and budget!

Visit us online today and bookmark:

pcmall.com AOL Keyword: PC MALL

FREE Notebook Case

with any notebook purchase from PC Mail!

- Expandable inside pocket for documents
- Rear compartment expands to 3" for your laptop
- Zip down organize with pen, disks and eyewear holders
- Adjustable clip-on strap
- 15" x 13 1/2" x 3"
- Lifetime warranty

Ask for item #48243.
\$4.99 shipping and handling fee applies. While supplies last.



K7 17" Color Monitor!

- 17" (16.3" Viewable Image)
- 1280 x 1024, 28mm
- One touch on-screen display controls

\$169.99

#44475

Price after \$50 mail-in rebate. Limited to one rebate per customer.

Incredible Price!

IXTV for PC and Mac

- Interact with TV on your desktop
- View TV & Video
- Capture digital movies

\$69.99

#46911

Best Seller



Stylus Color 740 InkJet Printer

1440 x 720dpi, 5ppm black, 5ppm color, USB and Parallel

\$149.99

#48268

Price reflects \$50 mfr. mail-in rebate. Regular price \$199.99.

Astra 2100U

- One touch scanning into your popular applications such as e-mail
- 600 x 1200dpi • 16-bit • USB

\$129.99*

#47378

*Price reflects \$20 mfr. mail-in rebate when purchased with any CPU.



AGFA ePhoto 780c Digital Camera

Up to 1024 x 768 pixels with AGFA PhotoGenie

\$199.99

#48140

While supplies last.

CD-ReWritable Drive Blowout!

2x/2x/6x Internal IDE CD-ReWritable drive

\$149.99

#49368

Lowest Price Ever!

While Supplies last!



Zip 250MB Port Drive

External • Parallel Port • Backward compatible with 100MB Zip Disks

\$149.99

#41337

Price reflects \$20 mfr. mail-in rebate. Limited time offer.

CD-Rom Blowout!

All drives internal

16x **\$27.99** #48557

20x **\$29.99** #49428

40x **\$29.99** #33806



While Supplies last! *Price after \$30 mfr. mail-in rebate.



Our enormous buying power with the top companies in the industry allows us to provide you with the best products at the lowest prices!

We'll Beat Any Price

From Any Authorized Catalog Reseller!

PC Mall is your
"Best Place to Buy
Multimedia Products"



Satellite 2060CDS

- 366MHz AMD-K6-2 processor w/3DNow! technology
- 32MB exp. to 160MB RAM
- 4.3GB HD 24X CD-ROM
- 12.1" Dual Scan display
- 56Kbps modem
- Windows 98

\$1,399

#48673

Satellite Series

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#48858	2590COT	366 Celeron	64	6.4GB	24X	12.1" TFT	56K	W98	\$1,799
#48859	4090XVD	400 Celeron	64	6.4GB	DVD	14.1" TFT	56K	W98	\$2,299
#48909	4100XVD	400 PII MMX	64	6.4GB	DVD	14.1" TFT	56K	W98	\$2,699

Tecra Series

#48231	8000	400 PII MMX	64	10GB	24X	14.1" TFT	56K	W95	\$3,649
--------	------	-------------	----	------	-----	-----------	-----	-----	---------

Portege Series

#48221	3110CT	300 PII MMX	64	6.4GB	—	10.4" TFT	56K	W95	\$2,239
--------	--------	-------------	----	-------	---	-----------	-----	-----	---------

Prosignia SMB

- 380 - 400MHz AMD-K6-2 processor w/3DNow! Technology
- 32MB or 64MB RAM exp. to 160MB
- 4.0 or 6.4GB HD 24X or DVD CD
- 12.1" or 14.1" TFT display
- 56Kbps modem
- MS Office 2000 SBE V2

\$1,695

#48205

Prosignia SMB Notebooks

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#48205	150	380 AMD K6-2	32	4.0GB	24X	12.1" TFT	56K	Win 98	\$1,695
#48206	150	400 AMD K6-2	64	4.0GB	24X	14.1" TFT	56K	Win 98	\$1,995
#48210	150	400 AMD K6-2	64	6.4GB	DVD	14.1" TFT	56K	Win 98	\$2,295

Presario 1245

- 333MHz AMD-K6-2 enhanced processor
- 32MB RAM 3.2GB HD 12.1" HPA
- NIMH Battery 56Kbps V.90 modem
- 7.3lbs 24X CD ROM Windows 98

\$799*

#48785

Presario Notebooks

Presario Notebooks									
Order#	Model	Processor	RAM	HD	CD/DVD	Display	Modem	O/S	Price
#48787	1275	366 AMD-K6-2	64	4.3GB	24X	13.0" HPA	56K	W98	\$1,099*
#48789	1685	380 AMD-K6-2	64	4.3GB 4X-DVD	12.1" TFT	56K	56K	W98	\$1,499*
#48793	1925	400 Celeron	64	6.4GB 4X-DVD	13.3" TFT	56K	56K	W98	\$2,099*

*Prices reflect \$400 ISP rebate, call for details

ThinkPad 390E

- 366MHz Intel® Celeron™ processor w/MMX™ technology
- 32MB RAM 24X CD
- 4.8GB hard drive
- 56Kbps V.90 modem
- 12.1" Active Matrix display
- Windows 98

\$1,899

#47403

Thinkpad 570

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#45759	570	300 PII MMX	64	4.0GB	—	12.1" TFT	56K	Win 98	\$2,699

Thinkpad 600E

#42428	600E	366 PII MMX	64	6.4GB	DVD	13.3" TFT	56K	Win 98	\$3,699
--------	------	-------------	----	-------	-----	-----------	-----	--------	---------

IBM Desktops

- 450 to 500MHz Pentium III™ processor w/MMX™ technology
- 32 to 64MB RAM
- 4.2GB to 8.4GB Hard Drive
- 40X CD-ROM (model dependent)

as low as **\$809**

IBM Desktops

Order#	Model	Processor	RAM	HD	CD	OS	Form	Price
#44365	627583U	450 PIII	64MB	4.2GB	40X	W98	DT	\$1,259
#44398	627594U	500 PIII	64MB	8.4GB	40X	W98	DT	\$1,569

DT=Desktop MT=Mini Tower MI=Micro Tower

ActionBook 340T

- AMD-K6-2/400MHz processor w/3DNow! technology
- 32MB RAM 4.3GB hard drive
- 24X CD-ROM
- 12.1" Active Matrix display
- V.90 modem

\$1,599

Only #48471

Umax Notebooks

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#48471	340T	K6-2/400	32	4.3GB	24X	12.1" TFT	56K	Win 98	\$1,599
#48474	540T	K6-2/400	32	4.3GB	24X	13.3" TFT	56K	Win 98	\$1,799

* Comes with FREE carrying case.

Prosignia SMB

- 400MHz Celeron™ Processor 64MB RAM
- 9.1GB Ultra ATA hard drive 10/100 TPCX NIC Card
- 32X CD-ROM 56K modem
- Includes: MS Office 2000 SBE, Norton AntiVirus 4.0

\$933

#48148

Prosignia SMB Desktops

Order#	Model	Processor	RAM	HD	CD	Modem	Form	O/S	Price
#48173	320	466 Celeron	64MB	9.1GB	32X	56K	MT	WNT	\$1,189
#48165	320	466 Celeron	64MB	13.5GB	32X	56K	MT	W98	\$1,199
#48174	330	550 Pentium II	128MB	18GB	DVD	56K	MT	W98	\$1,929

All models include Microsoft Office 2000 SBE and 10/100 NIC.

Presario 5304 Kit

- 366MHz MII w/MMX technology
- 64MB RAM Windows 98
- 4.3GB hard drive 32X CD
- 56Kbps modem 15" monitor
- Color printer

\$267*

Only #48674

Presario Desktop Kits

Order#	Model	Processor	RAM	HD	CD	Modem	Form	System	Price
#48675	5340	400 AMD-K6-2	96MB	4.3GB	32X	56K	MT	W98	\$517*
#48782	5360	450 AMD-K6-2	64MB	10GB	32X	56K	MT	W98	\$617*
#48784	5716	450 PIII MMX	96MB	15GB	6X DVD 15.5" SLT	56K	MT	W98	\$1,217*

* Includes Iomega Zip Drive and 10Mbps Ethernet port.

All kits include a 15" monitor, 1000 printer. Prices reflect \$400 ISP rebate. Call for rebate info.

HP Pavilion 4535

- 400MHz Celeron processor
- 64MB of RAM exp. to 384MB
- 6GB hard drive 32X CD-ROM
- 56K V.90 modem Windows 98

\$199

#48811

HP Pavilion Desktops

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#48808	8590C	600 PIII MMX	128	27GB	6X DVD	56K	MT	Win 98	\$1,599*
#48927	8560C	600 Celeron	96	12GB	CDRW	56K	MT	Win 98	\$699*
#48924	4550Z	466 Celeron	64	10GB	32X	56K	MT	Win 98	\$499*

*Includes CD-ROM and 10/100 NIC. *Includes Zip drive. All prices reflect \$400 ISP rebate, call for details.

56K MACH 2 56K V.90 PCI Modem BEST DATA

\$9.99

#49267 Internal

Requires Pentium 166MHz or higher running Win 95/98/NT. 1 year warranty. While supplies last! Reg. price \$29.99.

#47507 56K V.90 External modem \$9.99

56K V.90 PC Card Modem

- 12 bit 14.4Kbps technology chipset
- 1 year warranty

\$64.99

#42894

While supplies last.

Palm V™ Organizer

- 2MB Enhanced LCD screen
- State of the art design
- Infrared beaming

\$426.99

PC #47946

\$426.99

Mac #44046

#44001 Palm IIIx 4MB PC

#29985 Palm III 2MB PC

#338

#228



Includes FREE Carrying Case! While supplies last.

No Credit Card Surcharges



We accept Visa, MasterCard, American Express and Discover!

Open Accounts. PC Mall offers Net 15-day terms to government agencies, schools and businesses with instant approval to qualified customers. Your Personal Account Manager can assist you with your application. Please allow up to 3 days for credit approval.

Leases. Lease anything from one PC to one hundred at truly affordable rates!

Volume Licensing. Supply your entire office with the latest software versions for less! Call for details.

Prices and specifications subject to change without notice. We do our best to be accurate but occasionally mistakes occur. We are not responsible for any typographical, photographic or technical errors. NOTE: Products and packaging depicted may differ from stock available at time of shipment; we reserve the right to substitute equivalent items.

We'll Beat Any Price!

PC Mall may require proof of dealer pricing. Product must be in stock at the competition. PC Mall will only match price at the time of purchase, not after the sale. Advertised item must be identical to the one offered by PC Mall and must be a new item in a factory-sealed box. PC Mall reserves the right to limit quantity ordered. This offer does not apply to special, bonus or free offers, grand openings, special purchases or special buys, manufacturer's rebates, closeouts, clearances, or dealer's one-of-a-kind or other limited quantity offers. This offer does not apply to advertising errors made by any authorized dealer. Not open to dealers. Void where prohibited. Offer not valid in conjunction with other rebate offers. On multiple-item quotes: "We'll Beat Any Price" applies to the price of the entire order, not individual line items. Offer applies to pretaxed prices only.

Use Priority Code #ZPCW9A1

Norton AntiVirus 2000

Win 98/95/NT

Enjoy the security of automatic Internet and e-mail protection!

\$17.99*

#48569

*After \$20 min. mail-in rebate.

#48571 NEW Norton Systemworks 2000 \$3.99

#49568 NEW Norton Utilities 2000 \$4.99

#46963 NEW pcAnywhere 9.0 \$9.99

(After \$20 min. mail-in rebate) **After \$15 min. upgrade/crossgrade rebate.

Microsoft Office 2000

Go to www.pcmail.com/office2000 for the best prices on Office 2000

Upgrade today!

Office 2000 Standard upgrade **\$189.99***

#45120 Office 2000 Premium Upgrade w/IntelliMouse Pro Limited Ed. Win 95/98/NT \$399

#45125 Office 2000 Premium Upgrade Win 95/98/NT \$379

#45134 Office 2000 Professional Upgrade Win 95/98/NT \$289

#45140 Office 2000 Small Business Upgrade Win 95/98/NT \$189

*Price reflects a \$50 min. mail-in rebate. **Price reflects a \$40 min. mail-in rebate.

Visit pcmail.com or Call 1-888-932-2490

Circle 66 on card or go to www.pcworld.com/productinfo

LAS VEGAS NOVEMBER 1999

Politics has 1600 Pennsylvania Avenue.

The Army has West Point.

Peace and love have Woodstock.

Technology has Las Vegas.

It's where everyone in the
.com world is going.

...imagine what's next

The 20th Anniversary

 **COMDEX®**
Fall '99

November 15-19, 1999 • Las Vegas, Nevada



©1999 ZD Events Inc. All Rights Reserved • 300 First Avenue, Needham, MA 02494-2722 • 781-433-1500

C099-5175 8/99

www.lasvegas24hours.com

ZD ZIFF DAVIS
SOFTWARE
CORPORATION

The day when
you can go
to one source
for all of
your computer
needs isn't
too far in
the future...

 **firstsource.com**

The first and only source your business needs.

see, **th**at wasn't very

Notebooks



In Touch with Tomorrow
TOSHIBA
Satellite
4090X DVD
mfg# PAS409U-T2DW8

Celeron 400MHz, 64MB
DVD, 14.1TFT, 56K,
6GB, Win98

\$2348³³



COMPAQ
Armada
1750
mfg# 316550-002

P2-333MHz, 64MB,
6GB, 24x,
56K, 13.3TFT

\$2445⁴³

hp HEWLETT
PACKARD

OmniBook
XE2
mfg# F1723WT#ABA

C-300MHz, 32MB, 4GB,
24X, 56K, 12.1TFT

\$1495³²



Desktops



COMPAQ
DeskPro
EP
mfg# 356100-007

P2-350MHz, 64MB,
4.3GB, Win95

\$942⁸⁰



IBM Business
Partner
PC300
GL
mfg# 627771U

P2-400MHz, 64MB,
8.4GB, 32X, 56K

\$1224⁵⁴

In Touch with Tomorrow
TOSHIBA

Equium
mfg# PV1046U0V4J0

P2-350MHz, 32MB,
4GB, 32X, NIC, Win95

\$910⁵⁶



Printers



hp HEWLETT
PACKARD
LaserJet
2100TN
mfg# C4172A#ABA

10ppm, 8MB, 1200dpi
Network Ready

\$939⁹⁹

EPSON
Stylus
Color740
mfg# C257001

Inkjet, 6ppm, True
1400x1400dpi
Mac & PC

\$236⁰⁹



Tektronix
Phaser
mfg# 2740/P

16ppm(black),
5ppm(color),
True1200x1200dpi

\$2714⁷⁰

Networking

SuperStackII
500
mfg# 3C16611

24 port, autosensing
dual speed hub

\$933²⁷



ProCurve
Switch4000M
mfg# J4121A#ABA

Low-cost, scalable, desktop switch
w/optional gigabit ethernet connections

\$2051²⁴



hp HEWLETT
PACKARD

Networking
Kit
mfg# DFE-910

5 port dual speed hub and two 10/100mb
ethernet/fast
ethernet PCI NICs

\$114⁰⁷



D-Link
Building Networks for People

Power Protection



APC
Back-UPS **300**
mfg# BK300

300VA,
180 Watts

\$86⁴²

BELKIN

Power Authority
mfg# F5C140

6ft. cord, 7 outlets Strip

\$27⁶⁶



TRIPP LITE
Power Protection

Internet
Office700
mfg# InternetOffice700

6 outlets, 2 Fax
Modem Protection

\$165⁹²



Terms and Conditions

You buy securely when you shop at firstsource.com. To ensure your protection, firstsource.com ships only to your credit card's verified billing address. Shipping and handling charges apply—please contact your firstsource.com Account Executive for additional details. NO returns of any type will be accepted without an RMA (Return Merchandise Authorization) number. Due to manufacturers' return policies, only DOA (inoperable) Apple, Compaq, Hewlett-Packard and IBM products may be returned to firstsource.com for repair or replacement—ONLY at firstsource.com's discretion. NO CREDIT WILL BE ISSUED. All freight and insurance charges are non-refundable. For all prices, specials and products, firstsource.com reserves the right to make adjustments due to changing market conditions, discontinued products, price changes, errors in advertising or other circumstances unforeseen at this time. All trademarks and registered trademarks are the sole property of their respective owners.

far at all.

www.firstsource.com

800.249.9866

AOL Keyword: firstsource

InFocus

LP400

mfg# LP-0400-V

700 lumens
800x600, 6.8lb.

\$286⁷⁹



InFocus

LP425z

mfg# LP-0425-ZV

900 lumens
800x600, 7.4lb.

\$397¹⁴⁹



InFocus

LP435z

mfg# LP-0435-ZV

1000 lumens
1024x768, 7.4lb.

\$507⁵⁸⁴



Presentation

Microsoft

Office 2000 Pro

mfg# 269-02185

Complete upgrade
for Office97

\$305⁶¹



Microsoft

WindowsNT Server 4.0

mfg# 227-01234

Upgrade, plus 5
client licenses

\$282²⁵



SYMANTEC

Norton AntiVirus 5.0

mfg# 07-00-02307

Virus Protection

\$35⁶⁵



Software

radius
M-17 17"
mfg# RADIUS M-1
Trinitron® technology
at its best
\$245⁰⁶

ARGON
T770 17"
mfg# T770
3 year warranty,
48 hour advance
replacement service
\$199⁹⁵

ViewSonic
ViewPanel 14.5" LCD
mfg# VPA145
1024x768 XGA
Resolution
\$932²⁰

Monitors

hp HEWLETT PACKARD

ScanJet 5200Cxi

mfg# C7193A/ABA

600dpi USB

\$290⁷⁶



3Com

PalmIIIx

mfg#80301U

Personal Organizer

\$325⁶⁶



PhotoPC 750z EPSON

mfg# B080011F

6x zoom, 1600pixels x1200pixels

\$645⁷⁷



Extras

simple TECHNOLOGY

Memory

100% compatible
memory for today's
latest computers and more

See firstsource.com's
Memory Configurator



simple TECHNOLOGY

Flash

A complete line
of flash/smart media cards
including adapters and readers

See firstsource.com's
Flash Configurator



FUJITSU

DynaMo 640SE

mfg# CG01000-427801

640MB Magneto
Optical Disk Drive

\$336⁵⁰



Memory Storage

For everything else [click here](#) first.

firstsource.com

Cash Register Express Software for Windows...\$495

Computerize any type of retail store using Cash Register Express for Windows. Computerization pays for itself, saving you thousands of dollars, giving you peace of mind, and making the best use of your time. Cash Register Express



has more than 250 of the most desired point of sale features to help you leapfrog past your competition by controlling costs, reducing errors and increasing efficiency.

More Software for Your Retail Store

- ◆ Video Express
- ◆ Salon Express
- ◆ Auto Express
- ◆ RestaurantPro Express
- ◆ Barcode Express
- ◆ Label Works
- ◆ Inventory Track Express

- ◆ Credit Card Software
- ◆ All Single or Multiuser

All PC America Software requires Microsoft Windows. The software was written in Visual Basic using Microsoft Access Files. The source code is available.

CASH REGISTER EXPRESS™

More Profit!

More Sales!

More Customers!

*Save Time, Reduce Theft,
Speed Checkout, Increase Accuracy,
Reduce Costs, Make Better Business
Decisions by computerizing
your Retail Store.*

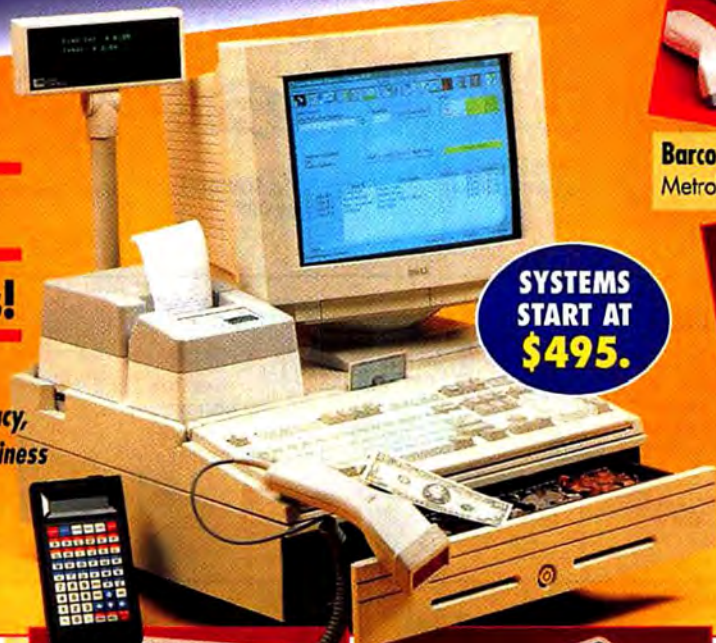


Dealers Wanted!

Join our dealer program.
It's FREE. It's the fastest way
to make money...AND
we make it EASY.

MORE INFO?

- ◆ Call Toll Free
1-800-722-6374
- ◆ www.pcamerica.com
- ◆ Fax on Demand
1-914-267-3551



**SYSTEMS
START AT
\$495.**



Cash Drawers \$189*
MMF, Logic Controls,
Indiana, APG



Programmable Keypads \$495*
Logic Controls, Cherry, Genovation
Credit Card Readers \$189*
Unitech, Mag-Tek

*All prices depend on make and model.



Barcode Scanners \$495*
Metrologic, Symbol, NJCR, Percon, PSC



Receipt Printers \$299*
Star, Ithaca, Citizen, Epson



Barcode Printers \$799*
Cognitive Solutions Barcode Blast



Pole Displays \$289*
Logic Controls

1-800-PC-AMERICA

Call Toll Free 1-800-722-6374
PH: 914-267-3500
FX: 914-267-3550

PC America
60 N. Harrison Ave.
Congers, NY 10920



Circle 195 on reader service card



Portable Data Collectors \$695*
American Microsystems AMS3000

PC WORLD MARKETPLACE

SHOP
HERE

SHOP FROM THESE
PRODUCT CATEGORIES:

- Internet/ISPs
- Productivity
- Education/Entertainment
- Systems/Peripherals
- Memory/Upgrades
- Services/Supplies
- Recruitment



New Shopping
Showcase at

www.worldshopper.com

Computer Products Plus lots more!

FOR ADVERTISING INFORMATION
CALL TOLL FREE:

888/254-0711

Vice President of Sales
Neal Mandel 212/655-5157

Midwest
Randi Kalb 212/655-5170

Northwest
Maritza Alvarez 212/655-5172

Southeast
Shirley Nixon 212/655-5114

Sales Manager/Northeast
Debra Robbins 212/655-5111

INTERNET/ISPs

9 Net Avenue	888/963-8283
AIT	910/485-2383
A Plus net/Solo Web	888/301-2516
Burlee Networks	877/48URLEE
Enet Value	888/998-7600
Fronthost	888/288-2518
Golden Hosting	734/996-9467
Hostway	800/308-6845
Inetu	888/66-INETU
Innerhost	888/751-5273
Interland	800/323-2685
Lazy Lizard	212/545-8535
Net Limited Host Pro	888/638-5831
Net Nation	888/277-0000
Online Marketing	800/741-6813
SiteHosting.Net	877/684-6784
Speedyweb (Irident Ent.)	888/416-HOST
Timehost Network	800/758-1530
Tzolkin	877/433-6865
Web Hosting Headquarters	877/933-6638
Worldwide Internet Publishing	800/230-9450

PRODUCTIVITY

Earth'sCheapest.com	877/478-6340
Crichlow Data	800/678-4535
Micro 2000	800/864-8008
On Hold Plus	800/296-3084
Vindex	541/758-0521
Worthington Data Solutions	800/345-4220

EDUCATION/ENTERTAINMENT

American Institute	800/767-AICS
Forefront Direct	800/475-5831
Journey Education Marketing	800/874-9001
Lantell Learning	800/526-8355
PCDI	800/223-4542
Sands of the Caribbean	800/555-2902

Software Showcase	800/699-1836
Transcender	615/726-8779
Via Grafix	800/233-3223

SYSTEMS/PERIPHERALS

Corporate Systems	408/330-5559
Granite Digital	510/471-6442

MEMORY/UPGRADES

1-800-4-MEMORY	800/463-6679
Crucial Technologies	888/363-3067
Data Memory Systems	800/662-7466
The Memory Liquidators	800/718-7755
Total Recall Data Recovery	877/4MY-DATA
Upgrades	800/679-9155

SERVICES/SUPPLIES

2000 Tools	888/779-2174
Advanced Battery	800/634-8132
Americal Micro Product	800/644-4404
Bear Rock Technologies	800/232-7625
Computer Comforts	281/488-2288
Computer Furniture	904/565-1163
Datum	877/465-3255
Dell Computers	888/452-3115
Drivesavers	800/440-1904
EnviroSAFE	800/719-9499
E.T.I.	800/757-5453
Infotech Systems, Inc.	877/51-ORDER
Kandu	800/579-2244
Lazarus Data Recovery	800/341-3282
Mega World	702/368-4969
Microstore	800/962-8885
Softman	888/999-2611
Software Outlet	800/568-6837
Star-Byte	800/243-1515
Supply Depot	800/331-8810
Sysnet Consulting	215/369-8009
Urban Computers	888/421-4947

Best
Reseller
Prices.

HE'S GOT
A WEBSITE.
DO YOU?

E-Commerce Enabled Resellers, We Refer Design Work 30 Day Money Back Guarantee
The Best Support and Pricing in the Industry.

Yeeehaaaaaw! It's what you'll say when you sign up with or switch to Interland® web hosting. Prices from as little as \$19.95 a month. Dual DS-3 connections for extra speed. A whopping eighty megabytes of disc space. Guaranteed 99.9% uptime. 24x7 toll-free support for the wee hours. And pricing with absolutely no hidden charges. You'll be happy, we guarantee it.

Check out our website and discover why more and more people worldwide are trusting their websites to Interland. Whether you're a computer veteran or just getting started, you'll receive the best service, support and technology the industry has to offer. At a price that's right for you. Not to mention a great reseller program. Give us a call today, and let Interland bring you the world.

Pricing From \$19.95 per Month

**Call Today 1-800-323-2685
(404)586-9999**

@ Speed. Reliability. Support.™
interland®
Web Hosting
www.interland.net

TZO.COMTry it
FREE
for
30 Days!Run your own Web, FTP and Mail servers
from your Cable or xDSL modem!

- Works with Dynamic or Static IP addresses
- For Cable, xDSL, ISDN and dial-up users
- Allows multiple domains on a single IP address
- Runs on Windows, Mac, Linux and more...

software LIBRARY ★★★★★
www.hotfiles.com

Awarded "5 Stars" by ZDNET.com



Awarded "5 Cows" by TUCOWS.com

As low as **\$24.95** per Year!

toll-free 1.877.433.6865

e-mail: info@tzo.com (outside US 978.433.9638)

CIRCLE 427 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

**FrontHost** WEB HOSTING SERVICESAccounts As Low As
\$9.95 A Month

- domain name registration
- www.yourcompany.com
- up to 300 MB disk space
- unlimited hits
- e-commerce
- Unix and NT hosting
- instant account activation
- control panel
- Microsoft Frontpage extensions
- cgi-bin directory
- OC-3 connectivity
- web statistics
- 24 hour 7 day tech support
- daily tape backups
- 99.7% uptime guarantee
- money back guarantee
- and more
- 1.888.288.2518

www.fronthost.com

CIRCLE 463 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

iINNERHOST**Experts.****Dedicated to Windows NT Web Hosting!**

Windows NT has an extended degree of expandability and adaptability in regards to important website components.

Active Server Pages - ASP Components - MS Access
MS SQL - MS FrontPage - Visual InterDev - Secure Server
Live Stats - 24/7 Server Monitoring - On Site Technicians

100% Satisfaction
99.9% Uptime

1.888.751.5274 www.innerhost.com

CIRCLE 419 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

ACCOUNTS FROM
\$19.95^{mo}**If your serious about doing business on the web...**

At LazyLizard, we understand the needs of online business. We've helped launch many very successful ones. We're always online to help you not only with technical issues but strategic and marketing issues as well. It's not just about web hosting anymore!

LazyLizard.net provides you with everything you need to get your business online, even Credit Card Merchant Accounts.

Please visit our web site for all the details

<http://lazy lizard.net>Phone: 212-545-8535 • E-mail: lazy@lazy lizard.net

- ◆ 300 Giant Mbs of Storage
- ◆ 8000 Mbs of Transfer
- ◆ Free Domain Registration
- ◆ 10 Free POP Accounts
- ◆ Shopping Carts
- ◆ MS FrontPage 2000
- ◆ High Profit Reseller Plan
- ◆ E-mail Auto Responders
- ◆ Web-based Control Panel
- ◆ E-mail Forwarding
- ◆ Your own CGI-BIN
- ◆ Real Audio/Video
- ◆ SSL Secure Server
- ◆ SQL Databases
- ◆ Unlimited E-mail Aliases
- ◆ More than 50 Features
- ◆ Commitment to fast & friendly tech support

CIRCLE 402 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Web HostingActivated in
10 minutes or
it's FREE!***24-7****\$9.95^{mo.}****www.yourname.com**

Unlimited Space!*

Unlimited Usage!*

Free Domain Name Parking!*

2 E-mail • CGI • Web Statistics

RESELLERS - www.yourclient.com
as low as \$3.60/mo.

www.websolo.com

(619)558-8449 (888)301-2516

*Some restrictions apply. See our website for details, or call our friendly staff.

CIRCLE 501 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SO DEDICATED,
WE SHOULD BE
COMMITTED.DEDICATED
VIRTUAL
SHARED AND
BUSINESS
HOSTING

iNetU
 WWW.INETU.NET
Toll Free: 888-66-INETU
Outside US: 610-266-7441

CIRCLE 420 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Entrepreneurs Wanted!

Start your own
Internet Business
today!



Get
**FIRST
MONTH
FREE!**
(promo code:
pcwd-3312)

yourname.com

Fully loaded web site for \$20
/month*

- 50 MB disk space,
- 2 GB traffic / month
- 10 mailboxes
- Frontpage™ 98 server extensions
- web based control panel
- web site statistics, etc.

30 day money back guarantee!

Make money on the net NOW! - Resellers wanted!



www.netnation.com
1-888-277-0000
Int.: +1(604) 688-8946
Email: sales@netnation.com

*US\$70 domain name registration fee is required by InterNIC.
Set up fee: \$50 Prices and features subject to change without notice.
All trademarks are the property of the respective owners.

CIRCLE 499 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

www.WeAreNTHosting.com

CLEAR AND SIMPLE

- MS SQL Server, Access, FoxPro
- Redundant DS3 Connection
- FrontPage 98 Support
- Active Server Pages
- ColdFusion 4.0
- SSL Secure Server
- Shopping Cart
- ECommerce
- CyberCash
- RealAudio/Video

Plans starting from

\$14.95 / month*



Reseller Program Available

* Does not include set up fee and InterNIC domain registration fees.

Toll Free: (877) 684-6784
(877) NTHOSTING

CIRCLE 444 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

What Should You Expect from a Hosting Provider?

You Should Expect
The World.

200 MB 6 GIG
13.95

**One stop
e-commerce solutions**

Includes Miva Merchant Shopping
Cart and SSL Access, Credit Card
Processing and Hosting!

**UNIX / NT
WEB HOSTING**
ASP Components
MS Access
MS SQL

PLUS:

Reseller Program
Dedicated Servers
Volano Chat

RealAudio/Video
Miva Script

- Multiple T3 & OC3
- Your Own FTP Site
- Secure Server Access
- POP 3 Accounts
- Your Own CGI Directory
- Web Control Panel Access
- Data & Power Back-Up
- 24 x 7 On-Site Monitoring
- 99.5% Uptime
- 30 Day Money-Back
- Same Day Set-Up
- No Minimum Contract
- Free Domain Registration
- Superior Tech Support

HOSTWAY

Expect The World.

1.800.308.6845 **www.hostway.com**



MS FrontPage
Extensions

CIRCLE 490 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

MARKETPLACE
Shop Here! Internet • ISPs

FREE
WEB HOSTING
FOR 30 DAYS!

www.yourname.com

UNLIMITED POP Email
UNLIMITED Traffic
UNLIMITED Space

\$9.95 a month!

RESELLERS \$6.95 PER DOMAIN
whh.net
Toll Free 1-877-933-6638

CIRCLE 401 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

affordable
web hosting
online setup
reseller discounts

9.95

- multi-backbone network
- unlimited traffic
- frontpage extensions
- secure server
- pop e-mail
- more...

29.95
web storefront
easy e-commerce setup

www.timehost.net
888-598-1772
(800) 537-4118

CIRCLE 437 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

eNET Value, Inc. Toll free **888-998-7600**
www.enetvalue.com

Microsoft® FrontPage® 2000
Supported In Every Pak!
(Yup, we support previous versions of FrontPage also.)

InterAct Paks & E-Commerce

50% OFF Starting At **\$5.95** **FREE**
1st 3 Months Service Months
ENDS AUG. 31ST 1 Month/Referral

Microsoft Web Hosting Specialists

Web Design Tools E-Commerce Server Technology
FrontPage/Visual InterDev FrontPage w/ StoreFront99 Microsoft Windows NT4.0
Access, SQL, ODBC Microsoft Access & SQL Server 6.5 Microsoft's IIS 4.0

CIRCLE 428 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Web Hosting

www.yourname.com as low as **\$2.95 / month**

All accounts come with:

Domain name registration or transfer
Unlimited domains (small setup fee for each)
Free submission to 1000+ search engines
Fast UUNet access into the Internet Backbone
FrontPage 2000 Extensions (NT)
Your own CGI directory
Pre-installed CGI scripts
Web control panel access
Superior tech support
99.5% uptime guaranteed
Fast setup (within 48 hours)
Secure Server (SSL)
Detailed web statistics
Unlimited FTP access
Anonymous FTP (UNIX)
Telnet access
POP 3 E-mail
Unlimited E-mail forwarding, aliases
Unlimited autoresponders
30-day money back guarantee

Great Reseller Program!

www.goldenhosting.com

CIRCLE 492 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

ADVANCED Internet TECHNOLOGIES, INC.



Standard Features:

- FREE Domain Name Registration*
www.yourcompany.com
- Dedicated IP Address
- 4000 sq. ft Data Center
- OC 12 Fiber Optic Multiplexer
- Up to 622 megabits per second
- Redundant T3 Backbones
- Redundant Cisco 7000 Series Router
- On-Site UPS Clean Power
- Generator Back-up System
- 30 day money back guarantee
- Your own ftp directory
- Your own cgi-bin
- Unlimited POP email accounts
- Unlimited email forwarding/aliases
- Unlimited Email autoresponders
- Password Protected Directories
- Easy to use Control Panel
- Online Billing
- Ticketed Support System
- QuickStats web statistics and log files
- Daily Tape Backups
- FREE Marketing Newsletters
- FREE SSL Secure server access
- FREE CGI/JAVA libraries
- FREE AIT Mail Listing
- FREE Ushop Webstore
- FREE PGP™ Secure email available
- FREE Guestbook
- Telnet access available
(server 2,3,4,5 only)
- mSQL Database capable
- Live Audio/Video capabilities
- Chat Rooms
- 24 hour 7 day Tech Support

*InterNIC fees apply

Your Hosting Solution	FrontPage	Server 1	Server 2	Server 2+	Server 3	Dedicated Server 4	Production Server 5
Disk Space (can be customized)	50MB	50MB	200MB	240MB	400MB	4.3 GB (flexible)	9 GB (flexible)
Data Transfer	4000MB	4000MB	8000MB	8000MB	16GB	Subnet	Subnet
Max # of domains you can host	N/A	N/A	25	25	75	250	1000
Base Monthly Server Cost	\$14.95	\$19.95	\$59.95	\$89.95	\$149.95	\$499.95	\$1999.95
Max. per domain cost @ \$2.00/domain/mo	N/A	N/A	\$50.00	\$50.00	\$150.00	\$500.00	\$2,000.00
Max. possible cost to you/ month	\$14.95	\$19.95	\$109.95	\$139.95	\$199.95	\$859.95	\$3,999.95
Your monthly gross profit @ \$19.95 domain	N/A	N/A	\$498.75	\$498.75	\$1,496.25	\$4,987.50	\$19,950.00
Your monthly net profit	N/A	N/A	\$388.80	\$358.80	\$1,196.30	\$4,127.55	\$15,950.05
Setup and 1st Month	\$53.95	\$58.95	\$108.95	\$138.95	\$244.95	\$1,249.95	\$4,999.95

WEB HOSTING

"Enabling Business Opportunities for Entrepreneurs™"

Try AIT's Latest Offering

NEW! NT PowerSite \$34.95/month



AIT Turnkey Ecommerce Solution
ECOMMERCE 1-2-3!

webstore shopping cart merchant account transaction gateway channel marketing

<http://www.aitcom.net>
sales@aitcom.net

Call Today **1-800-878-4084**

Pre-sales questions
1-910-485-2383

CIRCLE 514 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



Microsoft Certified
Solution Provider



Microsoft
FrontPage 2000



THE WORLD LEADER IN NT HOSTING

**FREE SETUP
FEES!***

**MORE TEETH FROM
YOUR WEB HOST**

from
\$19⁹⁵ mo.

Why do tens of thousands of businesses trust Worldwide Internet with their hosting needs? Because no other web host can offer so much service and support for so little... Dedicated Hosting, Complete E-Commerce Solutions,

Redundant, Secure Connections, Application Hosting—Worldwide Internet does it all and backs it up with 24/7 Toll-Free Phone Support. If you're considering a new web host, consider Worldwide Internet, the web host for serious websites.

- 120 MB Disk Space
- 4000 MB of Monthly Transfer
- 20 POP 3 E-Mail Accounts
- MS FrontPage™ 2000/IIS™ 4.0
- MS Active Server Pages
- MS Visual InterDev
- MS SQL 6.5 & 7.0/MS Access
- Real Time Site Statistics
- ASP Qmail

*Applies to transferred domains

- Shopping Cart and Credit Card Processing
- INEX™ Commerce Court
- Cybercash™/PaymentNet/Verisign™
- Toll-Free 7/24 Phone Support
- Redundant OC-12 Fiber Backbone
- 99.99% Uptime/30 Day Money Back Guarantee
- Dedicated and Co-located Hosting from \$199.00
- Great Reseller Prices
- Same Day Account Setup

Worldwide
INTERNET
The Web Hosting Authority™

800-785-6170

www.wipc.net

CIRCLE 432 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



Burlee Networks is the First major Web host to become a registered FrontPage 2000 Web Presence Provider



Burlee NETWORKS
"What's all the Buzz about?"

Unlimited and Metered Plans from \$12.95/mo

Toll Free
1-877-4-BURLEE

www.burlee.com

World's # 1 Rated Web Host!



We're Family Friendly
(No adult sites allowed)

- Full Support for FrontPage 2000 & 98
- SSL - E-Commerce • Full Database Support
- More POP3 E-mail Accounts • Unlimited FTP
- Unlimited E-Mail Forwarding • Unlimited Autoresponders
- Full WebTrends • Raw Data Logs • SSL • SSI • CGI-Bin
- 99.998% Historical Uptime
- Gigabit Network - 1,000 Mb/s • Multiple Backbone Connections
- Battery and Generator backup • Fully Redundant Systems
- World Leading Windows NT Web Host
- # 1 Customer Support Rating in the Industry

CIRCLE 429 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SpeedyWEB
450 MB WEBSITES
FREE! ONLY \$19.95

SECURE & RELIABLE

- 99.9% Guaranteed Uptime
- Dual T3 Network Connection
- E-Commerce Solutions
- 24-Hour Support

- Secure Server Access
- Domain Name Registration
- Site Statistics
- Pre-installed CGI Scripts

e-mail: sales@speedyweb.com • phone: 1-888-416-HOST (4678)

www.speedyweb.com
A Division of Trident Enterprises Inc.

CIRCLE 504 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

OLM — SPEED • POWER • PERFORMANCE

\$18.95/month

FREE EXTRAS
WWW/board installed • Graphics Counter
Guestbook installed • Shopcart
Free for all links page installed

- Advanced Web Control Panel
- True Virtual Domain
- Free Secure Server Access
- 10 POP Email Boxes
- Unlimited Aliases
- Unlimited Autoresponders
- Subscribable Mail Lists
- Resellers Welcome
- 150 megs of Space
- Graphical User Stats
- FrontPage Support
- Realaudio/video
- Full cgi-bin
- HTML Script
- Dual DS3 Internet Connection

Visit **www.olm.net** for more info
Contact us at 877-2-OLM-NET or sales@olm.net

CIRCLE 495 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

STATE-OF-THE-ART WEB HOSTING

Activate \$19.95 Now!

HostPro introduces a new era in web hosting: Speedy, reliable service jam-packed with innovations for just \$19.95 per month.

STANDARD FEATURES (all packages)

- Your own domain name (www.yourdomain.com)
- Free domain name registration
- Both Unix and NT hosting
- 30 day money-back guarantee
- Full Microsoft® FrontPage 98® support
- Default e-mailing capability
- Web control panel for site administration
- Unlimited autoresponders
- Unlimited FTP (24 hours per day)
- Full custom CGI execution capability
- Java™, Javascript, Perl, C, C++, SSI, Python
- Access to our vast CGI script library
- Excite® search engine
- Controllable anonymous FTP
- Daily detailed hit analysis
- Access to raw log files
- Daily complete tape backup
- Full-time uninterruptable battery backup
- Shockwave, Quicktime, Flash, Vivo & Emblaze
- Assistance w/script installation



Free set-up on site transfers
Hassle free switch with our assistance

Deciding on a web host is a pretty big deal. You owe it to yourself to contact HostPro at:

1.888.638.5831

www.hostpro.net • sales@hostpro.net

HostPro offers a variety of packages to give your site maximum impact for minimal expense. Contact HostPro about our more advanced features, commerce solutions and flexible add-ons.

NET VALUE	\$19.95
NET NT	\$29.95
NET PLUS	\$39.95
NET PRO	\$49.95

- 15% Discount given on 12 month contracts
- Resellers ▶ Ask about our NET PLANET Virtual ISP® program

HostPro
A division of NETlimited LLC

CIRCLE 438 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

think technology

think reliability

think speed

think service

think ahead

think website hosting

Think all website hosts are the same? Think again. **9NetAvenue** offers 24-hour toll-free customer support, incredible reliability, high-speed connectivity, and more — all at affordable prices.

Think about everything you'll ever need from a website host. Think value. Think 9NetAvenue.

9NetAvenue offers the power you need to expand, and the plans you need to get started:

Hosting starting @ \$14.95/mo www.9netave.net/hosting

- Unix or NT
- FTP and Frontpage 98 access
- Account Control Panel Access
- MS Access & MS SQL database and Cold Fusion
- Multiple OC12 w/diverse backbone connections
- Daily tape backup
- 24x7 site monitoring
- Toll-free multi-lingual 800 tech support
- Knowledgeable support personnel
- **10 Plans** to choose from

NEW

E-commerce starting @ \$29/mo www.9netave.net/ecom

- Real-time credit card processing online
- SSL encryption for added protection
- Inex, Storefront, PayPortal programs
- Browser Based Store Creation
- Cybercash & PaymentNet
- Easy to use store creation wizards
- Merchant accounts available online
- **Multiple Plans** to choose from

NEW

Dedicated servers starting @ \$99/mo your hardware or ours www.9netave.net/dserver

- Class A facility w/diesel generator backup
- 99.99% Network uptime guarantee
- Complete control through PCAnywhere/Telnet
- CISCO Switched Network
- 24x7 NOC
- Customize your server
- UNIX/NT options available
- Utilize the server to resell or for custom needs
- **8 Plans** to choose from

NEW

think fast.

act now. WWW.9NETAVE.NET | 1-888-9NETAVE



ask us about our unique 90 day free trial.

9NETAVENUE 1-888-963-8283 | 1-888-260-7890 (CANADA) | WWW.9NETAVE.NET | INFO@9NETAVE.NET



NSN-7025-01-448-5106

Which century will your PCs recognize on January 1, 2000?

Only CENTURION™ Y2K rollover card updates and corrects Year 2000 BIOS problems and the RTC by providing an onboard double-buffered Realtime Clock for 100% accurate dates past 2000. Installs in less than one minute for complete Y2K hardware protection.

Works with Pentium®, 486 and 386 computers — Protects your existing hardware investment. Update an entire office for less than the cost of buying a single new computer.

Fully tested, proven safe and reliable — The Y2K issue is both a software and hardware problem. CENTURION eliminates BIOS and RTC issues making your PC 100% hardware compliant.

FREE Y2K Testing Software — Download FREE software from our web site and find out if your PCs are Y2K hardware compliant at www.micro2000.com/centurion.htm

Call today for prices & volume discounts within the U.S. at 1-800-864-8008. International: 818-547-0125. www.micro2000.com • netsales@micro2000.com

Micro2000

KEEP YOUR PCs UP & RUNNING

CIRCLE 457 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Give your customers the finger!

Sound like a Fortune 500 company without spending a fortune...prices starting at only \$29.95!

HoldWare is a simple, easy-to-use software program that turns your PC into the ultimate telephone on-hold audio player! With HoldWare you can create, play and even script great sounding on-hold audio with a few simple mouse clicks...you can even record custom on-hold messages in your own voice! And everything you need is right in the box!

- Keep your customers entertained and informed
- Sound professional
- Available in Home Office, Small Office & PBX Office Editions

HoldWare. Whoever thought such a simple gesture could do so much to improve your image!

HoldWare™
THE #1 IMAGE TOOL FOR TODAY'S SUCCESSFUL BUSINESS

TELECONNECT
99 Editors' choice

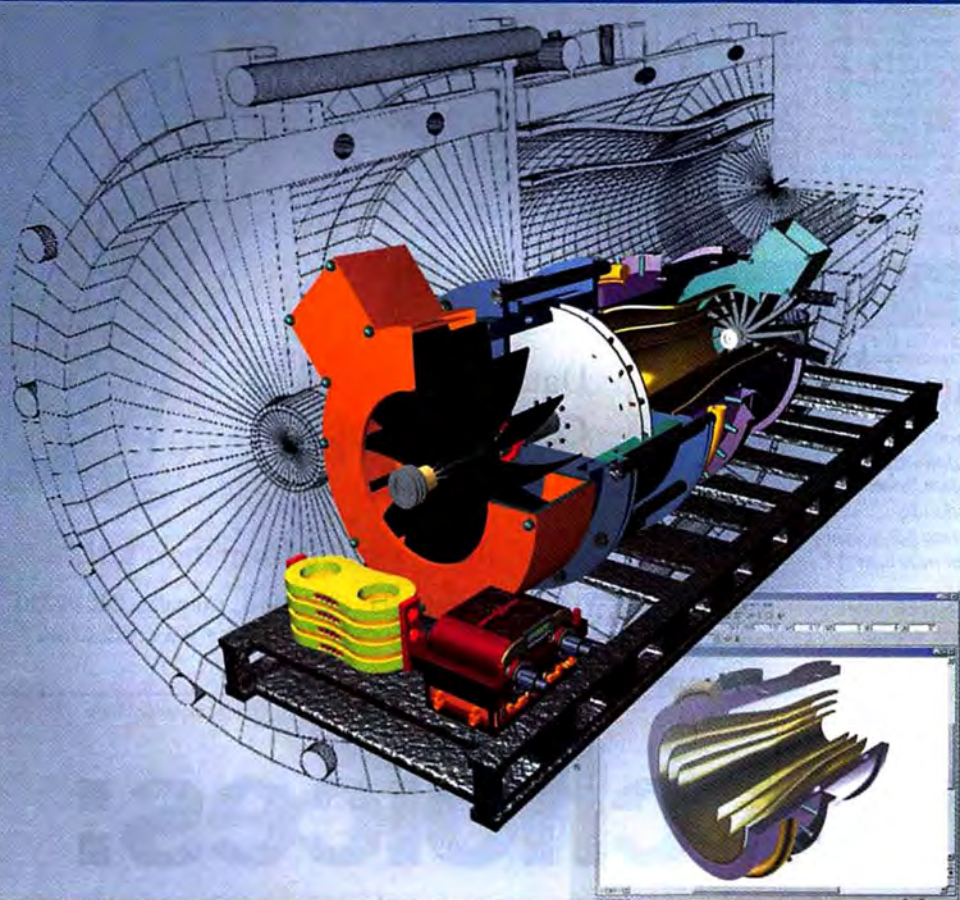


Supports
.MP3 audio
Download music from the internet

Get more info and buy on-line at www.holdware.com or call 800-296-3084

CIRCLE 471 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Gear Up for the 21st Century



DesignCAD Pro 2000

DesignCAD Pro 2000 is a fully integrated 2D/3D professional CAD system. You will have the ability to quickly and efficiently produce detailed 2D drawings and impressive 3D models at a fraction of the price. For only \$299, you get full Internet support, animation, anti-aliasing, true 3D texture mapping, Visual Basic support and compatibility with DWG, JPEG and VRML file formats.

Get the entire DesignCAD Office 2000 Suite for only \$595:

DesignCAD Pro 2000
Professional 2D/3D Symbols
DesignCAD Pro 2000 Multimedia Training

Developer's Toolkit
Scan Pro
Estimator Pro

Order DesignCAD Pro 2000 Today!

Call 800/233-3223 or
Go To ViaGrafix.com

ViaGrafix
One American Way, Pryor, OK

918/825-7555 • Fax: 918/825-6744
email: sales@viagrafix.com

NASDAQ:VIAX



Features

Easiest and Most Powerful 3D Package Available for the Price. With FREE technical support and a user friendly interface, you'll be spending less time learning and more time designing.

File Compatibility. True DWG (AutoCAD), DXF, IGES, JPEG, HPGL and BMP support.

Internet Ready. Place powerful VRML images on Web pages with ease. Direct email support lets you instantly transmit your images around the world.

2D Mode. Create simple or complex floor plans, schematics or any working plan.

Powerful 3D Modeling. Solid boolean operations such as subtract, intersection, interference checking, volume, surface area and center-of-gravity computations.

Textures and Animation. Map any texture onto 3D objects with ease. Anti-aliasing and lighting provide the most realistic presentation available. DesignCAD 2000 also features animation with AVI support.

Unlimited and Free Tech Support. Technical support is available for all registered users of DesignCAD. We guarantee a quick and helpful reply.



H-1910-9

CIRCLE 468 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

IT Professionals

Pursue an exiting career with a dynamic NATIONAL consulting firm

We are looking for experts in:

- OO Technology
- Web Development
- System Admin.
- Database Admin.



SysNET

Consulting Services Corp.

Tel: 215.369.8009 Fax: 215.369.1009
Email: pcworld@sysnetconsulting.com

PA NJ CT IL

CIRCLE 434 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

EarthsCheapest.com
SURPLUS SOFTWARE
CALL 877-478-6340
WillBeatAnyPrice.com

Windows 95	\$48	MS Office PRO	\$99
MSDOS 3.1/5/6	\$19	MS Works ANY	\$39
DOS 6.22 3.5"	\$29	Word/Excel/etc.	\$99
DOS 7 & Win CD	\$29	Visual Basic/C++	\$99
WIN 3.11	\$29	Java+/Any Prog	\$49
WinforWkGrps	\$39	Visual Studio	\$299
Win95 on 3.5"	\$59	Perl/Linux/etc.	\$39
MS PLUS!	\$19	AutoCad	\$599
Win98 Upgrade	\$69	Norton AntiVir	\$19
Win 98 full oem	\$89	QuickBooks Pro	\$199
Win98 retail	\$99	Lotus SmartSuite	\$29
Win NT wtk 4.0	\$99	Corel Suite Any	\$59
NT Licence only	\$69	Wordperfect Any	\$59
NT 4.0 Server	\$299	All versions available	
NT Backoffice	\$599	Licenses ONLY CALL	
Small Business	\$499	Old rare Titles CALL	
Proxy/Site Serv	\$199	Books CHEAP CALL	
Exchange Serv	\$199	Send Orders to: AOTSI	
Gov't PO's accepted		PO Box 90146	
Fax us 717-651-9811		Harrisburg, PA 17110	
BUYING SURPLUS		FREE SHIPPING!!!!!!	

CIRCLE 448 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

Made with Metal!



Data
Collectors—
Made to Last!

Call for a free information kit!

Videx, Inc., 1105 N.E. Circle Blvd., Corvallis, OR 97330
541-758-0521 • Fax 541-752-5285 • www.videx.com

GCC1075

CIRCLE 480 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

ADDRESS FOR SUCCESS

Location: <http://www.aics.edu>

Welcome to the NEW AICS Virtual Campus



FREE CATALOGUE:
1-800-767-AICS
or www.aics.edu

- Earn B.S. and M.S. in Computer Science
- **INTRODUCING: B.S. program in Information Systems**
- Distance Education
- Object oriented B.S. program
- Approved by more than 275 companies
- Follows ACM/IEEE guidelines
- Thousands of students throughout U.S.

AMERICAN
INSTITUTE
COMPUTER
SCIENCES

STATE LICENSED
AND APPROVED

ACCREDITED:
World Association
of Universities
and Colleges

Your 3 choices:

- 1 Go to a CompUSA or Micro Center & read the package
- 2 www.checksnet.com or call (702) 368-4969 for details
- 3 or waste money on dialup, host & e-commerce fees forever

Use the web...pay nothing.SM

web**FREE**TM

DELUXE

- dialup nationwide
- ConnectionKeeperTM
- email large files
- use ANY browser
- www.YourName
- 35MB site hosting
- page builder & FTP
- ePageMakerTM

- Sell unlimited items
- Instant payments
- ChecksNet Pro LETM
- Validate credit cards
- AutoResponder
- Search Listing
- Check & deposit forms
- Bonus Utilities

No fees of any kind. No time limits.
Everything you need to connect, create,
surf or sell in one INTEGRATED suite.

MSRP \$89.95
\$59.95*
MONEYBACK GUARANTEE

COMPUSA

MICRO CENTER

beyond.com*

COMPUTERS
4SURF

egghead

J&R

MICRO

*See website for moneyback guarantee, rebate and other details. Retailer prices may vary. Temporary internet service required to download latest connection & access number software. ©1999 Mega World, Inc. All rights reserved. Tradenames & marks properties of respective owners. AD#PCW1099

CIRCLE 460 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Get it for only
\$29.99!

Buy webFREE Deluxe & also buy
ChecksNet Professional Software, get \$30 rebate
by mail. Buy with ChecksNet Standard, get \$15 rebate.
Limited Time Offer. Details at www.checksnet.com

Turning the gambling world upside down!

of the Caribbean

The SANDS

www.thesands.com

Deposit \$150 or more & get \$25 FREE BONUS

It's time to start expecting more from an online casino and The Sands of the Caribbean® really delivers

"The Best Bet on the Net!"

Void where prohibited. Please check with local authorities regarding gambling in your state, territory, or country. Sands of the Caribbean is not affiliated in any way with Sands of Atlantic City or Sands of Las Vegas. Sands of the Caribbean is a registered trademark of World Wide Tele-Sports (WWTS).

CIRCLE 414 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Get Certified Fast!

Microsoft Certified Professional

Approved Study Guides

MCSE Certification

Lantell's MCSE Self Study course provides you with the easiest and fastest way to get certified without spending thousands of dollars!

- 12 MCSE Interactive Hands On Training CD ROMs will teach you all the tasks on Windows NT required to pass your exams quickly!
- 6 MCSE Microsoft Approved Study Guides that have earned straight A reviews from MCP Magazine! Covers the complete exam objectives to help you master the essentials of each course.
- TopScore assessment software. These 6 CD ROMs work in conjunction with the study guides, contain 1000's of randomized test questions and include the full text of the MCSE study guides.



NEXT GENERATION TRAINING

**\$ 479.95**

6 Study Guides + 18 CD ROMs

**A+ CERTIFICATION****\$ 239.95**

Total: 3 Study Guides + 5 CD ROMs

Incredible A+ Offer!

- CET's testing software on CD contains 1000's of sample questions developed to mirror the nature and difficulty of the actual A+ exams and works in conjunction with the study guides. Free upgrade for 6 months via Internet
- 3 A+ Study Guides (A+ Core, Dos/Windows & Windows 95)
- Bonus-Micro Tech USA's A+ Certification course on CD ROM.

**MCSE Core \$ 279.95**

12 Interactive CD ROMs or 12 Videos

Certification Training

MCSE + Internet	\$ 579.95
MCP	\$ 149.95
SQL 7	\$ 215.95
CNE	\$ 329.95
CNA	\$ 249.95
Network +	\$ 149.95

Visit lantell.com for more details!

800-526-8355
www.lantell.com

Lantell Learning Systems 16250 Ventura Blvd, Suite 202
 Encino, CA 91436 Ph 818-905-1262 Fax 818-905-1292

**Satisfaction Guaranteed!**

The fastest and easiest way to get certified with training you can trust. Backed by our 30 day money back guarantee!



CIRCLE 407 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



Q. A.



Question after question after question ... some folks can plain wear you out. Especially those guys at certification central. Always looking for another answer. So here's the real question: How do you know if you'll pass? Answer: when (and ONLY when) you've passed Transcender's exam simulations. With our new testing methods, TranscenderFlash, which features hundreds of additional questions, and now, our new A+ certification exam, it's easier than ever to say, "Certification? No Problem." Guaranteed.*

Transcender. America's #1 Exam Preparation Software.

To order, call Jack @ (615) 726-8779 or fax (615) 726-8884; 242 Louise Avenue; Nashville, TN 37203.

www.transcender.com

© 1999 Transcender Corp. All rights reserved. Microsoft is a registered trademark of Microsoft Corporation. Multi-user licenses are available. A+ is a registered trademark of CompTIA. *Call or see our Web site for details.

- Most Realistic MCSE, MCSD and A+ Simulations Available
- Detailed Answers and Explanations
- NEW! TranscenderFlash add-ons \$19
- From \$99 - \$179
- Money Back If You Don't Pass Guarantee*

Transcender[®]
Corporation

CIRCLE 513 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Would You Believe This Person Is Training To Advance Their Career?

- Gain Valuable Skills, Knowledge and Technical Recognition
- Open the Door to Great Career Opportunities
- Raise Your Income
- Study at Your Own Pace
- Interactive Hands-on Exercises
- Receive One-on-One Training Consulting

Self-Study Courses Available:

- | | | |
|--------------|--------------------|--------------|
| • MCSE | • MCSE+Internet | • MCP |
| • CNE | • Novell CIP | • CNA |
| • Cisco | • UNIX | • Networking |
| • Web Master | • A+ Certification | • PC Repair |
| • MCSD | • Visual Basic | • Visual C++ |
| • Java | • C++ | • Oracle |
| • Office 97 | • Lotus | • And More! |



Discover the fastest, easiest and most convenient way to train for a high-tech career. Our self-study computer-based training (CBT) courses allow you to study at your own pace in a comfortable and relaxed setting of your choice.

Each course contains in-depth theory, informative graphics, hundreds of test questions and hands-on exercises for training that surpasses traditional classroom or video instruction.

For a Free Course Catalog Call Today!

1-800-475-5831

FOREFRONT
DIRECT
A CBT Group Company

PC

25400 US Hwy. 19 N., #285 • Clearwater, FL 33763
1-800-653-4933 (727) 724-8984 Fax (727) 726-6922

CIRCLE 477 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Custom **ULTRA 2 SCSI** Cables - Terminators - Cases

If you want Ultra SCSI Performance use our Teflon Cables & Active Terminators.

Our knowledgeable SCSI Technicians will solve all your SCSI problems... guaranteed!

SCSIVue™ Active Terminator



Four models available with optional Remote LED Pak. These are the finest terminators available, they fix SCSI problems and improve reliability.

- Benefits:**
- Improves SCSI Bus Performance
 - Less Errors, More Reliable Data Transfer
 - Diagnoses Problems • Analyzes Signal Quality
- Features:**
- Active Regulation • Fast 50 & Fast Wide 68
 - Status Indicators • Gold Contacts

Active 2-1 SCSI Switch / Repeater

- Benefits:**
- Up to 14 Devices to 1 Computer
 - Share Devices Between 2 Computers
- Features:**
- 2-1 Active Digital Switch/Repeater
 - Regenerates SCSI Signal for Long Runs

Gold Diagnostic Adapters

- Styles:** Gender Changers
- Both 50 pin and 68 pin (all combinations)



Gender Changer
Styles: 68 Pin Drive to 50 Bus
68 Pin Drive to 50 Pin IDC
(runs wide drive as narrow)

Drive Bus Changer
(runs 68 pin on 50 pin bus)

Styles: 68 Pin Adapter Wide to 50 Pin Narrow
68 Pin External Adapter to 50 Pin
(converts Host Adapter)

68 Pin to 50 Pin Centronics
or 50 Pin MicroD Adapters

Styles: For Adapter: Ultra Wide Cards
Adapters with partial termination built in for 68 to 50 converters (converts Host Adapter)

Gender Changer
50 Pin Male to Male or 50 Pin Female to Female

Styles: Custom Adapters and Connectors that match most needs. If we don't have it we can make it.

From: \$29

Styles: Converts the 68 pin connector on a 68 pin cable to a 50 IDC female connector so that a 50 pin drive can be used on the 68 cable.

From: \$39

Styles: Converts the 80 pin SCA type drives to be used with either 50 or 68 pin SCSI Buses. Three models available.

From: \$39

Drive Bracket Kits- 3.5" to 5.25"

From: \$10

We carry a variety of Brackets that allow you to mount a 3.5" drive into a 5.25" bay. They include all screw and hardware necessary. Face panels are also available. Also see our Bay Cooler Fan and Bracket Kits.

Hot Swap Powered Terminator

From: \$69

Now you can safely remove any SCSI device from a SCSI chain by simply clicking a switch. The Hot Swap Powered Terminator also has an optional Power Supply so that it can supply termination power to portable setups or when termination power is not being supplied.

Ultra 2 (LVD) Wide Terminator

This is the ultimate terminator on the market. It offers both Ultra 2 (LVD) operation and standard Ultra Wide or Fast Wide operation, all in one unit. Automatically senses which type of bus you are using and configures itself to that bus.

From: \$99

Ultra 2 (LVD) SCA Drive Converter

From: \$39

Converts an 80 pin SCA LVD (Ultra 2) drive into a standard 68 pin LVD. Has a Power Connector and SCSI ID.

SCSIVue™ Gold Diagnostic Cables

- Benefits:**
- No Loss Of Important Data
 - Faster Performance
 - Test Cable Integrity

From: \$39

Teflon® 90 Ohm External Cables

- Benefits:**
- Ultra SCSI 40 MB/s operation
 - Fixes Ultra SCSI Cable Problems
- Features:**
- Perfect 90 Ohm Impedance Match
 - Triple Pronged Connector With Gold contacts

Gold .8mm Ultra SCSI Cables

- From: \$109**
- Benefits:**
- Faster Performance
 - Test Cable Integrity
 - No Loss Of Important Data
- Features:**
- New .8mm Ultra SCSI Connector
 - Triple Shielding (Unique Design)
 - Double Gold 20u" Plated Connectors
 - Diagnostic Indicators • Large Ferrite Filters

14 & 29 Bay Ultra SCSI Towers



From: \$999

Temperature Alarm Systems

Temperature is the number one cause for drive failure. Keeping drives monitored can now easily be done. Systems include outputs for emergency additional fans and computer notification.

From: \$69

Cool Dual Fan SCSI Cases

Fast SCSI Drives get HOT...but don't worry we have the perfect solution. Our new Dual Fan SCSI Cases keep any drive cool. Temperature is a drives worse enemy.

From: \$399

Granite Cables Are The Best Because They're Engineered Right.

Granite Cables were designed by SCSI Engineers to be the **Best Cables On The Market**. Everything about them means better performance and higher reliability. Our design incorporates an exclusive shield that protects the Acknowledge and Request lines from noise. Large Ferrite beads are installed on all cables to protect them from static and noise. Every cable incorporates a LED indicator that lets you know it is operating properly. We also use more **GOLD** on every cable. Add to this our impedance matching techniques and you have most of what makes us THE BEST!

FREE Technical Support!!!

Available to everyone, customer or not. We will fix your SCSI problems...call us. **FREE... Color Catalog** also available Call 510-471-6442 or SEE www.scsipro.com

What is Ultra 2 (LVD) ? • How fast is Ultra 2 (LVD) ?

This is the fastest SCSI available! Twice as fast as Ultra 1 SCSI and without any of its limitations. If you want true horsepower this is the Ultra SCSI system to buy. Completely backwards compatible with Ultra 1 SCSI, Fast SCSI, and SCSI 1 & 2! The key to this new SCSI Standard is the use of **Low Voltage Differential Technology**. Also known as (LVD) and Ultra 2 SCSI, we can now achieve speeds that far exceed even the fastest computers data throughput capabilities.

Ultra 2 (LVD) - SCSI Repeater / Converter

Now you can take all your SCSI devices and run them any distance you want, (up to 75 feet) while sharing the Ultra 2 SCSI bus. This revolutionary **Repeater / Converter** will give you, not only long cable distance, but also complete compatibility with the new Ultra 2

From: \$199

Gold External Ultra SCSI Cases

- Ultra SCSI Custom Teflon Cable Available
- Custom Enclosures in 1 Day for Raid & Arrays



From: \$99

Temperature ALARM! Automatic Monitor & Control

From: \$59

The Vertical 3.5" Case Kit offers a small transportable package. Ideally suited for moving around, this durable case can take a beating. Universal 35 Watt power supply.

From: \$29

Optional 50 or 68 Teflon® Cables Available.

Bay Cooler Kit keeps those HOT Ultra SCSI Drives COLD as ICE!

HOT SWAP Pull Out Bays
Compatible with all 50 pin & 68 pin SCSI Buses up to Fast SCSI 2. **From: \$79.00**

RACK MOUNT 8-Bay Commercial Grade Quality
Shown with optional Bay Coolers and Dual Redundant Power Supply

Options:

- Ultra SCSI Cable Kit
- Dual Redundant Power Supply
- Bay Coolers w / Brackets
- Temperature Alarm System
- Slide Out (400lbs rated) Rails

From: \$399

Internal Repeater

If you integrate SCSI Raid or Arrays and are having problems making it work, the Granite SCSI Repeater will make it work. Designed to fit inside any computer or external case. These repeaters will double the cable length of any SCSI bus allowing you to achieve the needed distance to make your system operate. Up to 2 repeater can be used per channel.

SCSI Cable Tester - LED Readout

This Digital SCSI Cable Tester can test all the popular cable styles for opens, shorts, and unreliable operation. Battery powered for easy use anywhere you need it. Three models to choose from:

- 50 pin IDC
- 50 pin Centronics
- 68 pin MicroD

From: \$29

The Book of SCSI - An Adventure

Considered "The Bible" of SCSI Books, it includes chapters on SCSI Basics thru Advanced SCSI. Written so that all of us can understand it, this is a reference guide that can be used by anyone. Its the best SCSI we have seen.

From: \$34

SCSIPRO Utilities - SCSI Repair

A combination of SCSI Utilities that helps you manage and diagnose SCSI problems. Allows you to set the drive for AV or Data optimization. Does custom block by block copies. Allows you to monitor SCSI operations. For Windows 3xx, 95 and NT.

From: \$99

Ultra 2 (LVD) - TPO Internal Cables

From: \$39

Benefits:

- Less Errors, Ultimate Performance
- TPO Shield Improves Signal Quality

Features:

- Perfect 132 Ohm Impedance • Custom in 1 Day
- Triple Pronged Connector • Gold contacts Silver Wire

68 Pin Replacement Cable for External Drive Cables

68 Pin Internal Cable

68 Pin Internal LVD Cables, custom or stock, from 1 to 15 SCSI devices per cable. The perfect cable for LVD. We usually take just 1 to 2 days to process all orders, including custom cables!

standard. There is no need to have two SCSI Adapters taking up precious PCI slots. Two models are available, the internal model that mounts into your enclosure, Raid/Array case, and the external that can be used anywhere.

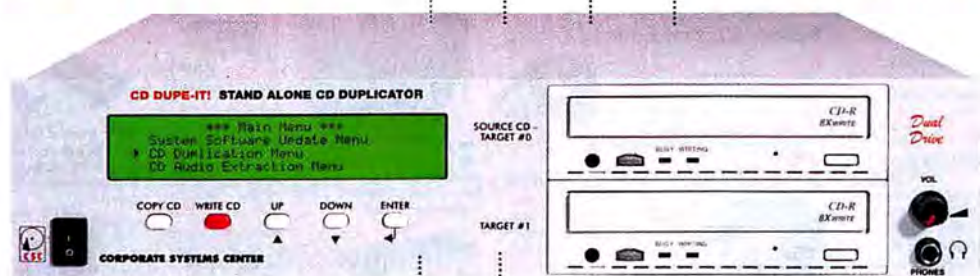
MARKETPLACE Shop Here! Systems • Peripherals

**BOTH SINGLE AND DUAL
DRIVE MODELS AVAILABLE.**

**INTERNAL A/V HARD DRIVE
STORES DISC IMAGES FOR MULTIPLE
COPIES, AND CUSTOM AUDIO DISCS.**

**EXTERNAL SCSI-II PORT WORKS
LIKE A STANDARD CD WRITER
FOR CREATING CUSTOM DISCS.**

**MAKE CUSTOM DISCS WITH
JUST THE MUSIC YOU LIKE.**



**TOTALLY SELF CONTAINED,
NO ADDITIONAL HARDWARE
IS REQUIRED**

**ADVANCED FORMAT DETECTION
PRODUCES PERFECT DUPLICATES
ON STANDARD CD-R MEDIA.**

COPY ANY CD NOW. NO PC REQUIRED.

DUPE-IT!

Instantly copy music and CD-ROM compact discs. Make backup copies of your favorite music and software on rugged, permanent CDs. Produce compact discs quickly and economically. No mastering or multimedia experience is required.

Insert your original CD and press "start." The multimedia processor quickly copies any disc to the internal A/V hard drive. Insert blank CDs and make as many copies as you like. You'll produce perfect duplicates. The system is totally self contained — no additional hardware is required.

FROM \$595!
100 BLANK CDs \$169!
408 330-5539

Just plug in the power cord and press "start"—it's that easy.

You can even make your own custom music CD without a PC! Insert your original CD's, select the tracks you want, and Dupe-It will copy them to the internal hard drive. Built in amplified stereo speakers allow you to preview the music before recording a CD. Then insert a blank CD, and you'll have a custom music CD with just the songs you want.

With the included CD mastering software, Dupe-It will work overtime as your personal CD design system. Just attach a SCSI cable to your PC or Mac, and you're ready to design and create your own original CD's. Similar systems used in duplication houses cost over \$5,000. Now you can easily copy CDs yourself for a fraction of the price.



CORPORATE SYSTEMS CENTER
3310 WOODWARD AVE., SANTA CLARA, CA 95054
WWW.DUPEIT.COM

Musicians—ask about our pro-audio CD recorders. Software publishers—ask about our high-volume multi-drive duplication systems. Dupe-It is sold and intended for backup and in-house design purposes only. Copyright laws must be observed.

Dual 8x20 model is pictured above.

MONSTER 47GB SCSI DRIVE



\$895!

FREE SCSI ENCLOSURE
408 330-5559

Open Windows instantly. Process huge graphic and database files with ease. Make your file server scream with speed.

The 47GB Seagate Elite is the drive you need for serious performance. It features 14 disks and 28 heads for blazing performance 3.5" drives can't touch. The Ultra Wide interface makes installation a snap. A 4MB cache buffer accelerates data transfers.

A special volume purchase brings you brand new drives at low, low PC prices. Shop around. Compare price. No one else can match this deal!

Buy just one drive and build the ultimate workstation. Or add several to take advantage of NT RAID performance. Let us custom-build your multi-drive disk array at no extra charge. Redundant rack-mount trays stack to build arrays bigger than 1,000GB per rack!

Get the speed you need and the reliability you deserve. Get rock solid Seagate quality backed by a warranty of up to six years! Call now! Try your 47GB monster drive risk-free.



CORPORATE SYSTEMS CENTER

3310 WOODWARD AVE., SANTA CLARA, CA 95054

WWW.SCSIDRIVES.COM

Seagate ST446452W drives are PC, Mac, SGI, and Sun compatible. 5 1/4" Elite drives are sold only in OEM enclosures and disk array trays. CSC carries low-cost, top-quality PCI controllers and SCSI accessories. If you haven't already upgraded to SCSI, call us for help. No-risk guarantee refunds your entire purchase price (less shipping) if you're not completely satisfied within 15 days. Call for your free catalog of hard drives, duplication equipment, and accessories.

Stan,

Great news! I found the solution to all those different files we have... CADMOVER! It looks like it will take our 2D & 3D CAD files and convert them into a desktop format so you can make up our training manuals & brochures. You'll be able to give me your artwork so I can place it on the new parts we're designing.

You've got to check out their website, it has all the info, formats, programs and tons of other stuff:

www.kandusoftware.com

or

call: 800.579.2244

It has a 30-day guarantee, we can't pass it up!



Kyle B.

CIRCLE 447 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

MEMORY

The Best Memory Prices & Guarantee

800-662-7466

Secure online ordering: datamem.com

Lifetime Memory Replacement Guarantee

DMS will meet or beat anyone's price!

UMAX

EPSON

FOCUS



MEMORY UPGRADES
Computers • Printers
Notebooks • Digital Cameras

- CPU Upgrades
- Hard Drives & CD-ROM Drives
- Modems for Mac & PCs
- Monitors-Std. color to Pro Mods.
- UMAX Color Scanners
- EPSON Stylus Color Printers
- Networking Connection Prods.

Pentium® Computer System Specials

USB USB Scanners/Printers & Accessories

DMS
DATA MEMORY SYSTEMS

DMS ACCEPTS GOVERNMENT, EDUCATIONAL & CORPORATE P.O.s WITH PRIOR APPROVAL

FAX P.O.s 24 HOURS TO DMS @ 603.898.6585

Open M-F 9a.m. 'til 9p.m.

CIRCLE 519 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

UPGRADES PLUS
WWW.UPPLUS.COM
800-679-9155
Ask about our VOLUME DISCOUNTS!!

PRODUCTS YOU NEED! PRICES YOU WANT! RELIABILITY YOU EXPECT! SERVICE YOU DESERVE! FRIENDLY STAFF!

STERLING 3XA \$115
Y2K FIX \$55
PC CAMERA \$75
CUSTOM NOTEBOOKS \$1299
2MB S3 VIRGE \$25
56K MODEM \$19
44X CD 1.44 FD \$39

MEMORY

256 MB	\$225
128 MB	105
64 MB	55
32 MB	29

CPU'S

PIII 550 MHZ	\$655
500	425
450	235
PIII 450	265
400	179
350	169
CEL 466-SKT	145
433	139
433-SKT	99
400	119
400-SKT	89
K6-3 450 MHZ	\$195
400	135
K6-2 475	165
450	89
400	79
350	49

HARD DRIVES

AC26400	6.4 GB	\$109
AC38400	8.4 GB	119
AC29100	9.1 GB	189
AC310100	10.1 GB	145
AC31300	13.0 GB	165
AC418000	18.0 GB	269
AC420400	20.4 GB	265
90840D	8.4 GB	\$115
91024D	10.2 GB	139
3064AT	6.4 GB	\$105
3084AT	8.4 GB	115
3102AT	10.2 GB	149
10GXP	10.1 GB	\$159
16GP	16.0 GB	195
18GXP	18.0 GB	269
25GP	25.0 GB	360

OLD STOCK AVAILABLE

CIRCLE 515 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

MEMORY
BUY / SELL / TRADE
GET \$\$\$ FOR YOUR PARTS • WE BUY EXCESS INVENTORY

Over 40 Years Experience! Gov't & Educational P.O.s & Credit Cards

SDRAM SIMMS CPU CHIPS NOTEBOOK MEMORY HARD DRIVES DIMMS

LOWEST PRICES - LIFETIME WARRANTY

Secure ON-LINE ordering up to **10% OFF**
Website Promo's/Discounts/Free Gifts

800-718-7755

www.MEMORYLIQUIDATORS.com

22825 Lockness Ave.
Torrance, CA 90501
310-326-5656
Fax: 310-326-7790
E-mail: sales@memoryliquidators.com
Prices subject to change without notice.

72 PIN SIMMS (FPM, EDO)

1 x 32 4 mg	60NS	11	8 x 32 32 mg EDO	59
2 x 32 8 mg	19	16 x 32 64 mg EDO	109	
4 x 32 16 mg	32	1 x 36 4 mg	14	
8 x 32 32 mg	59	2 x 36 8 mg	29	
16 x 32 64 mg	134	4 x 36 16 mg	47	
1 x 32 4 mg EDO	10	8 x 36 32 mg	88	
2 x 32 8 mg EDO	19	16 x 36 64 mg	145	
4 x 32 16 mg EDO	34	32 x 36	269	

CPU CHIPS

INTEL Pentium II Xeon 450/500 (1M)	\$1049/2695	Pentium 166/166MMX	54/59
Pentium II Xeon 400MHz (512K)	1895	Pentium 150/133/120	54/49/39
Pentium III 550/500/450	779/499/309	Pentium 100/90/75	39/29/29
Pentium III 450/400 MHz	299/209	486 DX2-66/DX4-100	19/39
Pentium II 350/333 MHz	195/149	Celeron 466/433	189/159
Pentium II 300/266 MHz	179/129	Celeron 400/366/333	139/99/89
Pro 200 512K/256K	399/139	Celeron 300A	89
Pro 180/150	119/69	AMD K5-3-400, K6-3-450	189/269
Pentium 233MMX	65	K6-2-450/400/350	139/99/119
Pentium 200 MMX	59	K6-2-333 (95MHz)	69
		K6-2-300 (100MHz)	69

DIMMS (168 pin)

SIZE	SDRAM	PC-66	PC-66 ECC
32Meg	39	44	
64Meg	69	79	
128Meg	119	129	
256Meg	469	519	
	PC-100	PC-100 ECC	
32Meg	39	44	
64Meg	64	69	
128Meg	99	129	
256Meg	309	339	

★ Call for Rambus Dimm ★

CIRCLE 520 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Memory is Crucial

The memory experts.



Compaq	128MB	64MB	32MB
Deskpro 2000 model 5166/1200	-	62.69	46.54
Deskpro 2000 5233MMX	\$120.64	62.69	46.54
Deskpro 4000 5166MMX	\$120.64	62.69	46.54
Deskpro 4000 5200MMX	\$120.64	62.69	46.54
Deskpro 6000 Pentium II model 300	\$132.99	78.84	53.19
Deskpro EN Minitor			
Model 9100CDS (450MHz)	\$131.09	68.39	50.34
Deskpro EP Model 6400 (450MHz)	\$131.09	68.39	43.69
Presario 4660	\$120.64	62.69	46.54
Presario 4808	\$120.64	62.69	46.54
Presario 5140	\$131.09	68.39	43.69
Armada 7710MT Laptop	-	138.69	74.09
Armada 1130T Series Laptop	-	138.69	74.09
Presario 1610 Laptop	-	62.69	40.84
Presario 1620 Laptop	-	62.69	40.84
Presario 1622 Laptop	-	62.69	40.84

Micron Electronics	128MB	64MB	32MB
ClientPro 766XI	\$120.64	62.69	46.54
ClientPro CP 450	\$131.09	68.39	43.69
ClientPro MRE P200	\$240.34	62.69	72.19
ClientPro P200	-	138.68	74.08
ClientPro VXE	\$120.64	62.69	46.54
Home MPC P200 w/ M54Hi BIOS	-	138.68	74.08
Magnum Pro Plus P200	\$294.48	163.38	87.38
Millennia 450	\$131.09	78.84	43.69
Millennia MAX 450	\$131.09	68.39	54.14
Millennia MME P233	\$120.64	62.69	46.54
Millennia Transport P133	-	-	93.08
Millennia Transport XKE P233(A)	-	138.69	74.09
TransPort Trek Series Notebooks	-	138.69	74.09
TransPort Trek2 Series	\$208.99	62.69	40.84

Gateway	128MB	64MB	32MB
G6-266	\$131.09	62.69	43.69
G6-300	\$131.09	62.69	46.54
G6-300XL	\$120.64	62.69	46.54
G6-350	\$131.09	68.39	43.69
G6-400	\$131.09	68.39	43.69
G6-450	\$151.99	68.39	43.69
GP6-266	\$120.64	62.69	46.54
GP6-300	\$120.64	62.69	46.54
GP6-350	\$131.09	68.39	54.14
GP6-400	\$131.09	68.39	54.14
GP6-450	\$151.99	68.39	43.69
P5-90	-	163.38	87.38
P5-133 XL with SIMMS	-	138.68	74.08
P5-200 XL with DIMMS	-	62.69	69.34
Solo 2300 Series	\$569.99	161.49	85.49
Solo 2500XL	\$208.99	62.69	40.84
Solo 5100SE	-	62.69	40.84
Solo 5150XL	\$208.99	62.69	40.84
Solo 9100XL	-	62.69	40.84

IBM	128MB	64MB	32MB
Aptiva (2134) Model 351	-	138.68	74.08
Aptiva (2140) Model L5H	\$120.64	62.69	46.54
Aptiva (2153) Model E2U	\$131.09	68.39	54.14
Aptiva (2168) Model A40	-	163.38	87.38
PC 300GL Series Model 6282	-	62.69	72.19
PC 300PL (6862-27U)	\$131.09	78.84	54.14

IBM (continued)	128MB	64MB	32MB
PC 365 Series Systems (6589xxU)	\$269.79	151.99	83.59
ThinkPad 1410 (i Series)	\$208.99	62.69	40.84
ThinkPad 1411 (i Series)	\$208.99	62.69	40.84
ThinkPad 365XD	-	-	74.09
Thinkpad 390 Series	\$208.99	62.69	40.84
ThinkPad 560	-	138.69	74.09
ThinkPad 770	\$208.99	62.69	40.84

HP	128MB	64MB	32MB
Pavilion 6350	\$120.64	62.69	46.54
Pavilion 8240	\$120.64	62.69	46.54
Pavilion 8390	\$131.09	68.39	43.69
Vectra VE Series 7	\$120.64	62.69	46.54
Vectra VE Series 8	\$131.09	68.39	43.69
Vectra VL Series 7	\$132.99	78.84	46.54
Vectra VL Series 8	\$131.09	68.39	54.14
Kayak XA PC Workstation 440BX Chipset	\$147.24	78.84	43.69
Kayak XA PC Workstation 440LX Chipset	\$132.99	68.39	46.54
Kayak XU PC Workstation 440LX Chipset	\$132.99	78.84	53.19
Kayak XW PC Workstation 440BX Chipset	\$147.24	75.99	50.34
Ominbook XE Series	\$208.99	62.69	40.84
Ominbook 2000	-	164.34	94.99
Ominbook 5500CT	-	164.34	94.99
Ominbook 800CT	-	170.99	85.49

Apple	128MB	64MB	32MB
iMac	\$208.99	62.69	40.84
Performa 5200	-	-	81.69
Performa 6115CD	-	163.38	87.38
Performa 6200 Series	-	-	81.69
Performa 6300 Series (except 6360)	-	-	81.69
Performa 6400 (5400 models)	-	170.99	85.49
Power Mac 5500 Series	-	170.99	94.04
Power Mac 6500 Series	-	170.99	94.04
Power Mac 8500 Series	-	-	85.49
Power Mac G3 (Yosemite)	\$131.09	78.84	54.14
Power Mac G3 Desktop Series (M6141LL/A, M6202LL/A) Gossimer	\$142.49	69.34	46.54
PowerBook G3 Wall Street 250	-	94.99	-
PowerBook G3 Wall Street 266	-	94.99	-

View our full line of memory upgrades and pricing at:

www.crucial.com/bb2

Prices shown here reflect a 5% discount for placing your order online. Prices were current as of 8.4.99, however they can (and do) change daily. Individual prices may vary according to your specific system and memory type.

10% additional savings available on select memory to qualified buyers. Call today for more information!

Immediate discounts for all online orders
www.crucial.com/bb2
 or call toll free: 1-888-363-3064

crucial
 TECHNOLOGY
 A Division of Micron

Your Factory-Direct Memory Source

©1999 Micron Semiconductor Products, Inc. All rights reserved. Crucial Technology is a trademark of Micron Technology Inc., and Micron is a registered trademark of Micron Technology, Inc. All other brands and names used herein are the property of their respective owners. Crucial Technology, a Division of Micron. Phone 208-363-3064, Fax 208-363-3061, E-mail: crucial.sales@micron.com

Factory Direct

**Computer Furniture
Network Furniture
Classroom Furniture**

www.computercomforts.com

COMPUTER COMFORTS, INC.

281-488-2288

FAX: 281-488-4272

CIRCLE 440 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Up to 80% OFF SOFTWARE

For Students, Teachers, & Schools!

AutoCAD LT 2000 \$329
Bryce 4.0 \$149
C++ Builder Pro 4.0 \$99
Canoma 1.0 \$379
Coda Finale 2000 \$249
CodeWarrior Pro 5.0 \$119
DeBabelizer Pro 4.5 \$279
Director 7.0 E-Doc \$349
Dreamweaver 2.0 \$99
Drumbeat 2000 \$199
EndNote 3.0 \$99
FileMaker Pro 4.1 \$119
Final Draft 5.0 \$149
Flash 4.0 \$99
FreeHand 8.0.1 \$99
HomeSite 4.0 \$75



\$139

JBuilder Pro 3.0 \$99
LightWave 3D 6.0 \$889
Mathematica 4.0 Student \$139
Media Cleaner Pro 4.0 \$329
NetObjects Fusion 4.0 \$99
PhotoTools 3.0 \$79
Poser 4.0 \$169
Ray Dream Studio 5.5 \$229
SmartSuite Millennium R9.5 \$599
VectorWorks \$339
Visio 2000 Standard \$99
Wacom Intuos 6X8 \$299
WordPerfect Office
2000 Standard \$59

Microsoft & Symantec products also available to qualifying customers

**Software
Outlet**

FREE Catalog!

(800) 568-6837

(732) 223-8770 Fax# (732) 223-8768

Email pcuser@swoutlet.com

www.swoutlet.com

CIRCLE 473 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

STOP Production Dust From Getting Into Your Computer Equipment



DS 850-CPU, Monitor & Keyboard

The DUSTSHIELD Positive Pressure Enclosures prevent dust & other harmful airborne particles from getting into & damaging computer equipment. A unique two-stage filter system creates an ultra clean positive pressure environment.

The DUSTSHIELD is Industrial Tough & Factory Floor Ready. Hinged doors provide easy access to the enclosed equipment's drives & connections

DUSTSHIELD's are easy, effective and affordable. Available for CPU's, Monitors, Servers, Printers, Full Workstations and Custom enclosures.

Envirosafe Technologies

1-800-719-9499

Fax 904-646-3575 • Website: www.dustshield.com

CIRCLE 489 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

COMPAQ

**HEWLETT
PACKARD**

**DON'T VISIT OUR ONLINE STORE
UNLESS YOU WANT TO SAVE BIG
ON OVER 500,000 PRODUCTS INCLUDING**
Laptops • Monitors • Desktops
Servers • Peripherals

IBM

TOSHIBA

**URBAN COMPUTER
CORPORATION**

www.urban-computer.net

888-421-4947

BUY DIRECT!



BUY TODAY!

CIRCLE 509 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

CHEAP SOFTWARE

TOLL FREE 888-999-2611

SAME DAY SHIPPING
100% SATISFACTION
MONEY BACK GUARANTEE

Phone: (310) 305-3644

FAX: (310) 305-3645

www.buycheapsoftware.com

**We'll
Beat Any
Price**

MICROSOFT

NEW! Office 2000 Std. Full Ver.-CD-Manual \$229
Office 2000 Pro Retail Box \$329*
Office 2000 Pro MOP License (5 minimum) \$369
Office 2000 Pro Upgrade Retail Box \$239*
Office 2000 Small Bus. Ed. CD-Manual OEM \$225
Office Pro 97 Full Ver.-CD-Manual \$219
Office 97.2 Small Bus. Ed. w/CD 98 OEM \$159
Word 97 Full Ver., MS Encarta 99, Works 99, Money 99, Greetings Workshop 99, StreetFinder 99 OEM Bundle \$95
Publisher 2000 CD-Manual-Retail Box \$95
Works 4.5 & Money 98 CD \$29
Project 98 Full Ver. CD-Manual \$269
FrontPage 2000 CD-Manual \$109
Visual C++ Pro 6.0 Full Ver. CD-Manual \$199
Visual Basic Pro 6.0 Full Ver. CD-Manual \$199
Visual Fox Pro 6.0 Full Ver. CD-Manual \$249
Visual Studio Pro 6.0 Full Ver. CD-Manual \$549
Visual Studio Enterprise 6.0 Full Ver. CD-Manual \$689
Windows 98.2 CD-Manual-Lic. Full OEM Ver. \$98
Windows 98 single user license & manual no CD \$59
Windows 95 OSR 2.5 w/CD-Manual-License OEM \$79
Windows 95 2X single user OEM license & manual \$49
Windows 3.11 MS-DOS 6.22 3.5 disk lic. & man. \$75

MS NT & BACKOFFICE 4.5 In Stock

NT Workstation 4.0 CD-Manual-License-CD-om \$139
NT Server 4.0 CD w/5 Client License \$429
NT Server 4.0 CD w/10 Client License \$589
NT Server Enterprise 4.0 CD w/25 Client \$1199
Terminal Server 4.0 CD & Man w/10 Client Lic. \$989
NT Server 4.0 20 Client License w/CD, No CD \$289
BackOffice 4.5 Small Bus. Ser. Full Ver.-25 Client \$2395
w/NT 4.0/SQL 7.0/Exchange 5.0/Proxy/Modem/Info Mail Fax
BackOffice Server 4.5 Full Version-20 Client \$3699
w/NT 4.0/SQL 7.0/Exchange 5.0/Proxy/Modem/Info Mail Server
BackOffice Server 4.5 20 Client License MOP \$2249

Corporate POs & CODs WELCOME
PACIFIC STANDARD TIME MONDAY - SATURDAY 7AM-6PM

ADOBE

Acrobat 4.0 Full A.E. Version \$139
Photoshop 5.5 Full A.E. Version \$329
Photoshop 5.5 Full Commercial Version \$499
Pagemaker 6.5 Plus Full A.E. Version \$299
Pagemaker 6.5 Plus Full Commercial Version \$389
Illustrator 8.0 Full A.E. Version \$189
Illustrator 8.0 Full Commercial Version \$269
Premier 5.1 Full A.E. Version \$459

COREL & LOTUS

Wordperfect 2000 & Lotus Millennium OEM \$95
Wordperfect Office 2000 Std. w/CD-Man.-Reg. OEM \$89
Wordperfect Office 8.0 Std. w/CD-Man.-Reg. OEM \$79
Wordperfect Office Pro 8.0 w/CD & Manual OEM \$119
CorelDraw 9.0 Graphic Studio Full Retail Version \$289
Lotus SmartSuite 97 CD-Full OEM Ver. \$49
Lotus Millennium CD-Manual Full OEM Version \$79

SYMANTEC

Norton Anti-Virus 5.0 w/CD-Manual, Full Ver. OEM \$18
Norton Anti-Virus 5.0 (10 User Pack) \$149
Norton System Works 1.1 Anti-Virus, Util. w/CD \$20
Norton System Works 2.0 CD only \$29
PC Anywhere32 9.0 Host & Remote Full Version \$109
PC Anywhere32 9.0 (10 User Pack) Retail Box \$699
ACT 5.0 w/CD-Manual, Full Version Retail Box \$129
ACT 5.0 (10 User Pack) Retail Box \$699
pcTelecommute 1.0 Work from home w/CD-Lic. \$44
TalkWorks Pro 2.0 Voice/FAX Message System w/CD-Lic. \$49
WinFax Pro 9.0 w/CD-Manual, Full Version Retail Box \$95
WinFax Pro 9.0 (10 User Pack) Retail Box \$549

DEALER INQUIRIES WELCOME
No Credit Card Surcharge *Price after Man. rebate

SoftMan Products Co

12654 W. Washington Bl. #103, Los Angeles, CA 90066
Prices subject to change without notice. All trademarks are property of their respective owners. Call for pricing on products not listed.

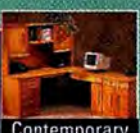
CIRCLE 512 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



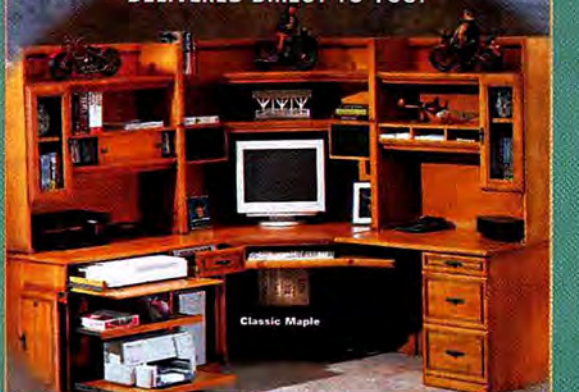
Traditional

**The Natural
Choice In
Computer
Furniture.**

DELIVERED DIRECT TO YOU!



Contemporary



Find just the style you want from one of five distinctive collections offered by Computer Furniture

real wood in over thirty computer-savvy designs priced from \$559. We deliver and set up in your home



Shaker

Direct. Enjoy the natural beauty of

or office. Call for your free catalog.



Mission

1-904-565-1163
www.cf-direct.com

Please refer to ad code: PCW1099

CIRCLE 423 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SEND THEM BACK TO SCHOOL JUST A LITTLE SMARTER.



Welcome to Dell Refurbished, where you can buy today's technology for less. Our quality refurbished Dell computers, including desktops, notebooks, workstations and servers, are all rebuilt to original Dell specifications and feature same-as-new limited warranties² and support.

CALL NOW. SUPPLIES ARE LIMITED. 1-888-462-3355

Mon-Fri 7am-9pm CDT • Sat & Sun 10am-6pm CDT • Keycode 23212



All systems refurbished. Available configurations may vary. ²For a copy of limited warranties, write to Dell Refurbished, 1 Dell Way - Box 65, Round Rock, TX 78682, Attn.: Warranties. All sales FOB Austin. Supplies limited to stock on hand. No rain checks. Prices and specifications subject to change without notice and valid in the U.S.A. only. ⁴For hard drives, GB means 1 billion bytes; total accessible capacity varies depending on operating environment. ⁵17X Min. ⁶14X Min. ⁷10X Min. ⁸2X Min. ¹¹Download speeds limited to 53Kbps. Upload speeds are less (in the 30Kbps range) and vary by modem manufacturer. Speeds also vary depending on line conditions. Analog phone line and compatible server equipment required. ³1X Min. HP and DeskJet are registered trademarks of Hewlett Packard Corporation. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Dell disclaims proprietary interest in the marks and names of others. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. ©1999 Dell Computer Corporation. All rights reserved. Printed in the U.S.A. Reproduction in any manner whatsoever without the written permission of Dell Computer Corporation is strictly forbidden. Dell cannot be responsible for errors in typography or photography.



Refurbished Dell® Dimension® XPS T550 Desktop

Pentium® III Processor at 550MHz

- 128MB Memory
- 13.6GB⁴ Hard Drive
- 512KB Cache
- 6X Max¹⁰ Variable DVD-ROM
- 320-Voice Sound
- 16MB AGP Video
- 56Kbps Capable¹¹ V.90 Modem
- 100MB Zip Drive
- 17" (16.0" viewable) Monitor

\$1689

Refurbished Dell Inspiron™ 3500 A366GT Notebook

Pentium II Processor at 366MHz

- 64MB Memory
- 6.4GB⁴ Hard Drive
- 24X Max⁷ Variable CD-ROM
- 16-bit Sound
- 14.1" XGA Active-Matrix Display
- 2.5MB AGP Video
- 56Kbps Capable¹¹ V.90 Modem
- Lithium Ion Battery

\$2189

Refurbished Dell Inspiron 7000 A400LT Notebook

Pentium II Processor at 400MHz

- 128MB Memory
- 10GB⁴ Hard Drive
- 4X Max¹⁰ Variable DVD-ROM
- 16-bit Sound
- 15" XGA Active-Matrix Display
- 8MB AGP Video
- 56Kbps Capable¹¹ V.90 Modem
- Lithium Ion Battery

\$2979

Accessories (with system purchase):

harman/kardon HK-195 Speakers	\$29
Nylon Notebook Carrying Case	\$39
Inspiron Secondary Lithium Ion Battery ..	\$99
Hewlett Packard ScanJet 5200Cxi Scanner	\$299
Hewlett Packard DeskJet® 882C Color Printer	\$299

BE DIRECT™
DELL®

www.dell.com/outlet/home

MARKETPLACE Shop Here! Services • Supplies

PRODUCTIVITY

POINT OF SALE!

Before You Buy or Sell
Another Point Of Sale Package,
Take A Serious Look At



The POS Software You Can Depend On!

- Point of Sale
- Accounts Payable
- Inventory Control
- General Ledger
- Accounts Receivable
- Mailing List

Over the past 15 years, The General Store has replaced over 40 competitive packages. The General Store is a dependable, powerful, and flexible software solution that has been installed in retail stores around the world.

Call today for more information
and a FREE DEMO,
or visit our web site at
www.thegeneralstore.com.



800-678-4535

Lakeland, FL 33801

426 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

- AMS Scan+ • DateSpy Pro

2000TOOLS
The #1
Source for
Y2K Find, Fix
and Test

Hardware • Data • Code
Evaluation CD ☒
Y2K Services ☒
Available

2000TOOLS
Group, Inc.

888.779.2174
414.352.3573

www.2000TOOLS.co.uk

- DateFind • AMS Scan+

476 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

CD-R/CD-ROM
Replication

All Packaging
Services

Disk Duplication

**Order-taking &
Fulfillment**

For 17 years we've done it all, quickly,
accurately and economically.

For more information, see our website -
www.starbyte.com

Star-Byte, Inc.
2880 Bergey Rd., Hatfield, PA 19440
1-800-243-1515

479 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

WWW.BARCODEHQ.COM

Bar Code Labeling

LabelRIGHT Software - \$295

- Any format, any label WYSIWYG
- Formats for Sears, K-Mart, Penney's, WalMart, EIA, AIAG, etc.
- Code 128, UPC/EAN, 2 of 5, Codabar, Code 39
- Lines, boxes, rotations, color, PCX, BMP, etc.
- Simple custom operator interface
- Prints to LaserJet, DeskJet, and Dot-Matrix
- DOS version too - only \$279



Bar Code Fonts for

Windows and Mac - \$199

- Insert bar codes into any font based Windows program
- Prints Code 39, UPC/EAN, Code 128, PostNet, Codabar, 12 of 5
- Hotkey desktop translation or DLL for programmers

Bar Code Printers

- Complete Package - \$895
- Thermal Transfer Printer for bar codes, text and graphics
- Includes Windows or DOS software, cable, labels & ribbon
- Up to 4 inch label width
- High speed and industrial models available



Wireless Readers

- Cordless on-line scanning
- Transmits up to 100 feet
- Complete one-way Wand - \$595
- Two-way Laser with Base - \$1650
- No license necessary
- Base attaches as a second keyboard
- Serial attachment also available



USB

Wireless Terminals

RF Data Terminal

- 1,000 ft. range (1,000,000 sq. ft.)
- Scan and key data on-line
- Computer sends display and triggers voice messages on Terminal
- All programming on host (VB, C, Access, etc.)
- Bar code input by Wand, Laser or CCD
- Base Station - \$845 (up to 16 Terminals)
- Complete Terminal with Wand - \$1215
- With integrated Laser scanner - \$1790



Fixed Readers

Keyboard Wedge Wand - \$299

- Attaches as second keyboard
- No software needed
- For Windows, DOS, Mac
- Code 39, UPC/EAN, 128, 2 of 5, 93, Codabar, etc.
- Wand, Laser, CCD, Slot Badge and Magstripe



USB

Keyboard Laser Reader - \$659

- "Point and Shoot" reading
- Decoder built into Laser
- No extra box
- For PC and Mac
- Code 39, UPC/EAN, 128, 93, Codabar, Interleaved 2 of 5, etc.
- Lifetime warranty on scan element



USB

Laptop Laser Reader - \$795

- Does not draw power from laptop
- 4 AA batteries in handle or uses wall power
- Attaches to DB-9 serial port
- Supplied program makes scanned data appear as keyed

Portable Readers

Batch Data Collection Unit

- 256K unit with wand - \$759
- Scan and key data to memory
- Battery operated (3 AAs)
- Upload collected data to host computer - serial or keyboard
- 2 built-in inventory programs
- Patented voice prompts
- XModem serial upload
- Windows and DOS uploading software included at no charge
- Easy to create custom prompts and custom voice messages.
- Cord attached Wand, Laser or CCD



USB

- 256K built-in Laser model - \$1299
- Laser scanner built into top of the RF Terminal
- Easy one-handed scanning
- Comes with shock absorbing rubber boot and wrist strap
- RA approved - license free
- Lifetime warranty on scan element



Call Us Toll Free 800-345-4220

Broadest Selection of Bar Code Products in the Industry

- Technically superior products direct from the manufacturer
- Toll free technical and pre-sale support
- 24-hour turnaround on repairs
- 30-day money back guarantee
- 14 years of service

or visit our website at

www.BARCODEHQ.COM

for a complete catalog and bar code primer

WORTHINGTON
DATA SOLUTIONS

Phone: 831-458-9938 • Fax: 831-458-9964 • Europe: +353 1 6614 566

Students & Teachers

Up to **80% OFF**

CALL FOR
MICROSOFT
PRICING!!

+Autodesk +Macromedia and 1,000's more!!
+Borland +NetObjects
+Corel +Symantec

3D Suite 3.0	\$299	Flash 3.0	\$99
C++Builder Pro 4.0	\$119	FreeHand 8.0	\$99
Bryce 4.0	\$159	HyperStudio 3.2	\$119
Canvas 6.0	\$199	Kal's Power Tools 5.0	\$89
Coda Finale 98	\$249	LightWave 3D 6.0	\$889
CodeWarrior Pro R5	\$119	NetObjects Fusion 4.0	\$99
CorelDRAW 9.0	CALL	PC MACLAN 7.2	\$129
Director 7.0	\$349	Painter 5.5	\$219
Eye Candy 3.0	\$79	Poser 4.0	\$195
FileMaker Pro 4.1	\$139	TrueSpace 4.0	\$319
Final Draft 4.1	\$149	Wacom Intuos 6x8	\$285
FireWorks 2.0	\$99	WordPerfect Office 2000	CALL

\$99



FREE Catalog (800) 699-1836

Software Showcase Inc.
Phone (732) 660-8820 FAX (732) 660-8828
417 Euclid Ave, Loch Arbour, NJ 07711

We will **BEAT** any
advertised Price!

www.softwareshowcase.com

412 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

BAR CODE SOLUTIONS

- Bar Coding & Labeling Software
- Bar Code Font Packages
- Scanners, Lasers & Printers
- Inventory Management
- Time & Attendance

UPCEAN
CODE 39
CODE 128
INTERLEAVED 2of5
POSTNET and More!



Visit us online at:
www.bearrock.com



Bear Rock Offers:
Free Expert Consultation,
Lifetime Technical Support
and Satisfaction Guaranteed
on ALL Bar Coding products!
Bear Rock Welcomes VARs.

FREE Handbook
"Guide to Understanding Bar Code Basics"

Call Today for a FREE Consultation!

800 232-7625

Intl: (530) 672-0244 Fax: (530) 672-1103

418 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

Blank CDRs **79¢**
in packs of 2000

TDK • SONY Digital Audio, 80Min & DVD.
TDK Qty 50 ea. 1.79
Sony Qty 50 ea. 1.89
Kodak Gold 50 1.79

High Quality Blank CD-Rs
74 min, 650MB spindle
Pks / 100 ea. .99
Pks / 200 .89
Pks / 1000 .85
Gold on Gold/100 1.19
Silver on Silver/100 .99
CDRW Pks / 50 1.99

8X Certified CD-R CD Accessories
8X CD-R pk 100 \$1.19
8X CD-R pk 200 \$1.09

Americal Micro Products, Inc.
800-644-4404
www.americal.com

Visa • MC • Amex • Corporate/Gov't Acnts Welcome

445 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

BATTERIES
call for a free catalog !!

Providing Batteries for over 15 years...

- Better Service
- Attention to Detail
- Timely Delivery
- True Savings
- Experience
- Reliability
- Your Source for Batteries

LOW PRICES

Laptops...Two-way radios...
Cell phones...Memory backup
Cordless Phones...Camcorders

(800) 634-8132

NiCd, NiMH, Lithium Ion
Sealed Lead, Alkaline...

<http://home.navisoft.com/periphex>

467 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

EDUCATION

Become a PC repair expert!

Accredited home study course.
Learn how to install, upgrade,
troubleshoot, and
repair hardware
and software. In-
crease your on-
the-job value,
or open your
own PC repair
business.
Send or
call 24 hours a
day for your
free career lit-
erature.

Call 800-223-4542

Name _____
Age _____ Phone (____) _____
Address _____
City/State _____ Zip _____
The School of PC Repair
PCDI, 430 Technology Parkway
Dept. JJJ684, Norcross, GA 30092

451 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

MEMORY/UPGRADES

1-800-4-MEMORY
1-800-4-MEMORY
1-800-4-MEMORY

WE CAN BEAT ANY PRICE ON MEMORY FROM ANYONE ANYWHERE !!!

CALL AROUND THEN CALL US

WWW.18004MEMORY.COM
WWW.18004MEMORY.COM
WWW.18004MEMORY.COM

465 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

Find it fast.
Buy it now.

Shopping for computer products? The fastest, easiest way to get your hands on exactly what you're looking for is the PC World Marketplace classified ads. From memory and software to peripherals and service, it's where one-stop shopping begins.

PC WORLD Marketplace

SERVICES/SUPPLIES

PREVENT LAPTOP THEFT!



The Laptop Locker™

- Tamper-Proof, Keyed Lock
- Sturdy Steel Construction
- Protective Foam Lining
- Mounts Virtually Anywhere

FOR DETAILS OR TO ORDER,
VISIT OUR WEB SITE:
www.holdall.com
Or Call 1-877-465-3255

HoldAll.com
York, PA

502 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

DATA RECOVERY

TOTAL RECALL EXTREME RECOVERY

WHATEVER IT TAKES.

877-4MY-DATA

THE DATA RECOVERY COMPANY™
www.totalrecall.com
2462 Waynoka Rd.
Colorado Springs, CO 80915
(719) 380-1616/380-7022 fax

496 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

PC WORLD ACTION CARDS SELL!



Your competition doesn't want you to know it, but this card pack really works. PC World Action Cards are mailed right to the most recent PC World subscribers. It's a cost effective alternative, and it couldn't be easier. We do all the work for you.

- Your competition doesn't want you to know:
- How many leads it generates
 - How cost effective it is
 - How easy it is

You'll never know unless you call a VentureDirect National Media Specialist today at (212) 655-5157. Call today for a free estimate.

VENTUREDirect
Direct Response Marketing & Media Solutions
WORLDWIDE
64 Madison Ave, New York, NY 10010 Phone: 212.644.4800 Fax: 212.574.1129
e-mail: info@vdm.com www.venturedirect.com

445 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

MARKETPLACE Shop Here! Classified

SERVICES/SUPPLIES

Design your own PC

Home system
Office system
Linux system
Server



AMD 3D
K6-II 400
Only \$499

- 4.2GB HDD
- 8M AGP Video
- 32MB SDRAM
- AT Motherboard
- 40X CD-ROM
- 56K V.90 Fax
- Windows 98
- 3D Sound
- FDD, Speaker, K/B, Logitech Mouse
- 15" CTL Monitor Add \$119

We carry all different systems.

Your best choice. Call NOW!

www.infotechnow.com
1-877-51-67337 (order)



We carry most major brand name parts!

INFOTECH SYSTEMS, INC

455 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

Accept Credit Cards Now!



FREE
Application
Setup Fee
\$195⁰⁰ Value!

www.electronictransfer.com

Electronic Transfer, Inc.

1-800-757-5453

ETI is a registered ISO/MSF of Commerce Exchange Bank, Beachwood, Ohio. American Express and Discover Merchants Approved Separately.



436 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

DATA RECOVERY
IN HOURS

- Over 10 years of experience with clients worldwide including HP, NASA, & FedEx.
- We've recovered more than half-a-million megabytes of lost data.
- No minimum charge or diagnostic fee.
- Call 24 hours a day.



LAZARUS
DATA RECOVERY

800-341-3282

415-485-5506 • FAX 415-485-5503 *RESTRICTIONS MAY APPLY*
181 Clementine Street • San Francisco, California 94103

470 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

Mouse Pads



- Your design/logo
- Fast turnaround
- Guaranteed Quality
- Fulfillment Available

<http://www.microstore-mousepads.com/>

MicroStore™ Inc.

P.O. Box 125
Le Sueur, MN 56058
800-962-8885
Fax: 507-665-2604

298 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

SUPPLY DEPOT INC.
Genuine Brand
Toners for Less!!

All Brands Discount Prices
Copy Toners • Laser Toners
Inkjets • Fax Toners
Ribbons • MagMedia
Xerox • Canon • Ricoh
Savin • Sharp • Okidata
HP • Epson • IBM etc.

We're one of the U.S.'s Largest Discount
Retailer of Genuine Brand Toners,
Drums, Ribbon, etc. to the Public

When You Need Toner Order Toll Free

800-331-3810

Canon Copy & Fax Toner
Genuine Brand Cartridges! **Out these prices**

3030/3050 Copy Toner (G-5) \$49/case
4050/4080 Copy Toner (G-4) \$45/case
6025/6030 Copy Toner (G-7) \$39/case
5000/7000 Copy Toner (FX-2) \$76/case

118 Morton Ave
Providence, RI 02909 Fax 401-331-3146

462 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

DATA RECOVERY:
800-440-1904

7 good reasons to choose
DriveSavers:



Since 1989

1. We are the fastest, most trusted, data recovery professionals.
2. Retrieve recovered data instantly with DATAEXPRESS™ over secured Internet lines.
3. Recommended and certified by all drive companies to maintain your warranty.
4. 24-hour, onsite and weekend service available.
5. Advanced, proprietary data recovery techniques.
6. Featured by CNN, BBC, Forbes, & many others.
7. Federal & State Contracts (GSA, CMAS.)

www.drivesavers.com

431 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

EDUCATION

STUDENTS!

Save up to 75% OFF popular software!

DTP	Adobe
Animation	Microsoft
CAD	Kineltix
Business	AliaWavefront
Medical	Softimage
Utilities	Autodesk
Music	MetaCreations
Programming	Corel
Web Publishing	ADAM
	Many More!!

FREE CATALOG!

MAYA • SOFTIMAGE • MAX

1-800-874-9001

YOUR PROFESSIONAL ANIMATION SOURCE!

JourneyEd

JOURNEY EDUCATION MARKETING

518 ON CARD OR WWW.PCWORLD.COM/PRODUCTINFO

IF YOU HAVE A PRODUCT
OR SERVICE TO SELL
WE HAVE THE
PERFECT PLACE
TO ADVERTISE!

When you advertise in
PC World
Marketplace:
you reach
buyers, not just
readers. That's
because PC
World is more
than just a
computing
magazine...
It's a buying
resource guide!
To place your ad
in the "Products
and Services"
section



PLEASE CALL
888-254-0711

VENTUREDirect
Direct Response Marketing & Media Solutions WORLDWIDE

PC World provides readers with three easy ways to get product information. Choose from one of these options:

FREE PRODUCT INFORMATION AT YOUR FINGERTIPS!

► **mail** Fill out the pre-paid postcard below and mail.

► **fax** Fill out form below and fax to 503/684-5370.

► **online** Visit us at: www.pcworld.com/productinfo

PC WORLD FREE PRODUCT INFORMATION

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE () _____ FAX () _____

E-MAIL _____

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription to PC World PLUS a free mouse pad (U.S. only). You will be billed \$24.95.

► CIRCLE THE NUMBER corresponding to the product or product category you want to know more about. Mail, fax (503/684-5370), or go online at www.pcworld.com/productinfo. Manufacturers will send product information directly to you.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Advertised Products

951	Desktop computers	956	Graphics software	961	Mail order companies
952	Notebook computers	957	Network/sharing products	962	Storage devices
953	Windows software	958	Printers	963	Web products/services
954	Monitors and video boards	959	Multimedia products		
955	Accounting software	960	Utilities		

PC WORLD Visit us at: www.pcworld.com/productinfo

4CYYS

October 1999 This card expires February 4, 2000 ST

FREE PRODUCT INFORMATION

For a Quicker Response:

- Go Online at: www.pcworld.com/productinfo
- Or, Fax to 503/684-5370

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



PC World provides readers with three easy ways to get product information. Choose from one of these options:

FREE PRODUCT INFORMATION AT YOUR FINGERTIPS!

- **mail** Fill out the pre-paid postcard below and mail.
- **fax** Fill out form below and fax to 503/684-5370.
- **online** Visit us at: www.pcworld.com/productinfo

FREE PRODUCT INFORMATION

For a Quicker Response:

- Go Online at: www.pcworld.com/productinfo
- Or, Fax to 503/684-5370

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

PC WORLD FREE PRODUCT INFORMATION

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE () _____ FAX () _____

E-MAIL _____

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription to PC World PLUS a free mouse pad (U.S. only). You will be billed \$24.95.

► CIRCLE THE NUMBER corresponding to the product or product category you want to know more about. Mail, fax (503/684-5370), or go online at www.pcworld.com/productinfo. Manufacturers will send product information directly to you.

PRODUCTS FEATURED IN EDITORIAL

601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620
621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640
641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660
661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680
681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700
701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720
721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740
741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760
761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780
781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800
801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820
821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840
841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860
861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880
881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900

PRODUCT CATEGORY INFORMATION

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920

Advertised Products

951 Desktop computers	956 Graphics software	961 Mail order companies
952 Notebook computers	957 Network/sharing products	962 Storage devices
953 Windows software	958 Printers	963 Web products/services
954 Monitors and video boards	959 Multimedia products	
955 Accounting software	960 Utilities	

PC WORLD Visit us at: www.pcworld.com/productinfo

PUBLISHER Jeff Edman

Ad Sales Business Manager Patricia Owen

ADVERTISING SALES

ASSOCIATE PUBLISHER/ADVANTAGE MARKETING
Bob Ostrow (508/370-0844)

SALES ASSOCIATE/OFFICE MANAGER
Ellen Sanderson

EAST

ASSOCIATE PUBLISHER/EAST
New York/New Jersey/Connecticut
Wayne Silverman (201/587-0090)

Thalia M. Karakitsios, Senior
Account Manager (201/587-0090)

Sales Associate Heather Shanley
New England/Ohio/Eastern Canada
Michael Carroll, Senior Account
Manager (508/370-0842)

Sales Associate Luanne Kiley
Mid-Atlantic/Southeast/Pennsylvania
Judy Sutter, Senior Account
Manager (770/394-0758)

Sales Associate Charlye Gandee
Peter Spande, Account
Representative (201/587-7342)

MIDWEST
Kathy McKay, Senior Account
Manager (847/827-4477)

Sales Associate Tammy O'Sullivan

NORTHWEST
NORTHWEST ADVERTISING DIRECTOR
Mid-S.F. Peninsula/Fremont, CA/South
Bay/Oregon/Washington/Montana/
Wyoming/Western Canada
Roy Kops (415/243-0500)

Sales Associate
Alison Fennings Wetherall
San Francisco Bay Area
Colleen Hirner, Account Manager
(415/243-0500)

Sales Associate Jennifer McQuat
Ad Sales Coordinator Ladi Malek

Northwest
Duane Hampson, Senior Account
Representative (415/243-0500)

SOUTHWEST
ASSOCIATE PUBLISHER/WEST
Bill Hanck (310/312-8008)

Los Angeles/Orange County
Abby Ziff, Account Manager
(310/312-8118)

Sales Associate Joyce Clarke
Texas/Lower Midwest
Harvey Diamond, Senior Account
Manager (972/398-2608)

Sales Associate Janine Copey

Southern California (San Diego)/
Colorado/Idaho/Nevada/Utah/
New Mexico/Arizona

Susan Green, Account Manager
(949/250-8081)

Sales Associate Sheila Morales
Southwest
Shannon Smith, Account
Representative (415/243-0500)

CONSUMER ADVERTISING SALES
DIRECTOR OF CONSUMER ADVERTISING
Michael Carroll (508/370-0842)

Eastern U.S.
Edman & Company (212/551-1121)

Michigan/Pennsylvania/Ohio
Heth & Associates (248/642-7273)

Western U.S.
Hutch Looney & Associates
(323/931-3444 x227)

PC WORLD MARKETPLACE/
PC WORLD ACTION CARDS
Neal Mandel (212/655-5157)

PC WORLD REPRINTS
Mike Shober (717/560-2001 x29)

MARKETING
DIRECTOR OF MARKETING Sandy Wong

PR MANAGER Amy Dalton
PRESENTATION SPECIALIST David Grayson

MARKETING SPECIALIST
Harriet Newman

RESEARCH
VICE PRESIDENT, RESEARCH Bettina Eichel

RESEARCH MANAGER Sandra O'Boyle
SENIOR RESEARCH ANALYST
Stephen Riddle

RESEARCH ASSISTANT Karen Edson

CIRCULATION
VICE PRESIDENT, CIRCULATION
Shawne Burke Pecar

DIRECTOR OF CIRCULATION OPERATIONS
David Cobb

DIRECTOR, SINGLE COPY SALES
Cheryl Stephenson

SENIOR MANAGER, RETENTION MARKETING
Lisa Radler

SENIOR PROMOTION MANAGER
Shira Weisbach

PROMOTION MANAGER Judy Apostol
PROMOTION COORDINATOR Susan Klawiter

CIRCULATION ASSISTANT Shama Ali
CIRCULATION ADMINISTRATIVE ASSISTANT
Patrick McConnell

CUSTOMER SERVICE SPECIALIST
Tina Phelps

PRODUCTION

PRODUCTION DIRECTOR Nadia Maudsley
PRODUCTION MANAGER Nancy Jonathans

DIGITAL ADVERTISING PRODUCTION MANAGER
Lewis Lee

ADVERTISING TRAFFIC COORDINATOR
Yvette B. Joplin

PC WORLD ONLINE
CEO Thomas Gewecke

VICE PRESIDENT, FINANCE AND OPERATIONS
Madeleine Buckingham

ASSOCIATE PUBLISHER Sandy Schackman

DIRECTOR, CONSUMER ADVERTISING
Julie Calder

DIRECTOR, AUDIENCE DEVELOPMENT,
MARKETING AND RESEARCH
Noel McLaughlin

DIRECTOR, AUDIENCE DEVELOPMENT
Ellen DiMatteo

DIRECTOR, PRODUCT DEVELOPMENT
Adam Block

DIRECTOR, APPLICATIONS DEVELOPMENT
Matt Turner

NATIONAL ACCOUNTS MANAGER
Gabrielle Green

CLIENT SERVICES MANAGER
Patricia McMahon

WESTERN REGIONAL ADVERTISING SALES
DIRECTOR Stephanie Ericson

SOUTHWESTERN DISTRICT ADVERTISING SALES
MANAGER Eugenie Brown

EASTERN REGIONAL ADVERTISING SALES
MANAGER Don Calamaro

DISTRICT ACCOUNT MANAGER, EAST
Charles Pitzer

NORTHWEST DISTRICT ADVERTISING SALES
MANAGER Melissa Gruber,
Sean Murphy

DESIGN MANAGER Grace Woo

PRODUCT MANAGER Carla Lieberman

ACCOUNT EXECUTIVE David Korman

ADVERTISING PRODUCTION & CLIENT SERVICES
MANAGER Erin Wayman

ADVERTISING PRODUCTION MANAGER
Elizabeth McGrath

PRODUCT MANAGER, ONLINE NEWSLETTERS
Declan Fox

INTERACTIVE CUSTOMER SERVICE MANAGER
Mark Green

CUSTOMER SERVICE REPRESENTATIVE
Maureen Kilkeary

BUSINESS MANAGER Ulla McGee

BUSINESS OPERATIONS MANAGER
Kate Agrell

SENIOR ONLINE BUSINESS ANALYST

Tobias Harting

BILLING MANAGER Diane Hacker

ADVERTISING ANALYSIS COORDINATOR
Kristine Equihua

ONLINE BUSINESS ANALYST Charles Lee

ADVERTISING PRODUCTION SPECIALIST
Amy Bellia

ADVERTISING PRODUCTION COORDINATOR
Dalia Schwartz

ONLINE BILLING COORDINATOR
Lisette Walsh

ASSISTANT MANAGER, MARKETING
Cheryl Allen

AUDIENCE DEVELOPMENT COORDINATOR
Traci Shefcyk

MARKETING AND ADVERTISING SALES
COORDINATORS Adriana Cecchini,
Mariesa Baiz

PRODUCERS Matt Donham,
Patrick Herms

SENIOR APPLICATIONS DEVELOPER
Simon King

APPLICATIONS DEVELOPERS Newton
Bailey, Alison King, Karen Windus

PROJECT MANAGERS Lisa Engelbert,
Victoria Klum, Licia Simon

SENIOR CONTENT ENGINEER
Nick Van Cleve

SYSTEMS ADMINISTRATOR Tom Cowan

ONLINE DESIGNER Eliza Wee

EXECUTIVE EDITOR, TIPWORLD Jim Welp

COPY CHIEF, TIPWORLD Celilia Crosby-
Lampkin

ADMINISTRATION

HUMAN RESOURCES AND
INFORMATION SYSTEMS

VICE PRESIDENT Richard Willoughby

DIRECTOR Katherine Coldwell

HR ASSISTANT Julie McKie

VICE PRESIDENT, CIO Henri Froissart

DIRECTOR, INFORMATION SYSTEMS
Norman Noble

NETWORK MANAGER Rodney Barnes

IT DEVELOPER/ANALYST Stan Erhart

INFORMATION SYSTEMS SPECIALIST
Eileen Quan

FINANCE

COO/CFO Vicki Peilen

EXECUTIVE DIRECTOR OF ACCOUNTING AND
OPERATIONS Pat Murphy

ACCOUNT MANAGER Michelle Reyes

DIRECTOR, ADVERTISING ACCOUNT SERVICES
Kevin Greere

ADVERTISING SERVICES COORDINATOR
Yuliya Korentsvit

PC World is a business unit of International Data Group (IDG). Headquartered in Boston, IDG informs more people worldwide about information technology than any other company in the world. With annual revenues of \$2.05 billion, IDG is the leading global provider of IT media, research, conferences, and expositions. IDG publishes more than 290 computer newspapers and magazines and 700 book titles in 75 countries, led by the *Computerworld/InfoWorld*, *Macworld*, *Network World*, *PC World*, *Channel World*, and *For Dummies* global product lines. IDG offers online users the largest network of technology-specific sites around the world through IDG.net (www.idg.net), which comprises more than 225 targeted Web sites in 55 countries. IDG is also a leading producer of 168 computer-related expositions in 35 countries, and research arm International Data Corporation (IDC) provides computer industry research and analysis through 49 offices in 41 countries worldwide. Company information is available at www.idg.com.

THE COMPANY: IDG is the world's leading IT media, research, and exposition company. Founded in 1964, IDG had 1997 revenues of \$2.05 billion and has more than 9000 employees worldwide. IDG offers the widest range of media options, which reach 90 million IT buyers in 75 countries representing 95 percent of worldwide IT spending. IDG's diverse products and services portfolio spans six key areas including: print publishing, online publishing, expositions and conferences, market research, education and training, and global marketing services.

PUBLICATIONS: More than 90 million people read one or more of IDG's 290 magazines and newspapers in 75 countries each month. IDG's five global publication product lines—*Computerworld/InfoWorld*, *Macworld*, *Network World*, *PC World*, and *Channel World*—account for more than 175 of these titles, delivering a consistent class of buyers throughout the world.

BOOKS: IDG Books Worldwide is the fastest-growing computer book publisher in the world, with more than 700 titles in 38 languages. IDG Books Worldwide's leading brands include *For Dummies*®, *One Step at a Time*®, *Dummies 101*®, the *Simplified*® series, and the *SECRETS*® series. The *For Dummies*® series alone, which includes more than 350 titles, has more than 50 million copies in print worldwide.

ONLINE: IDG offers online users the largest network of technology-specific Web sites around the world through IDG.net (www.idg.net), which comprises more than 225 targeted Web sites in 55 countries. IDG.net provides a global gateway to the Web's richest content via highly targeted sites that reflect the distinct

information needs of each audience they serve. IDG Web sites are supported by the world's only global IT news organization: 2000 journalists in 75 countries reporting the latest technology news and analysis in multiple languages around the world.

RESEARCH: International Data Corporation (IDC) is the world's leading provider of information technology data, analysis, and consulting. With research centers in 41 countries and more than 400 research analysts worldwide, IDC is uniquely positioned to provide a global perspective on IT market and technology trends, serving more than 3900 corporate and government agencies worldwide. IDC/INX is the leading provider of worldwide market research in consumer computing, including personal computing, interactive entertainment, and online services.

EVENTS: IDG World Expo is a leading producer of more than 168 globally branded conferences and expositions in 35 countries. Industry leading international event series include E! (Electronic Entertainment Expo), Macworld Expo, ComNet, Windows World Expo, and ICE (Internet Commerce Expo). Leading conferences include Agenda, DEMO, and Spotlight, in addition to customer-sponsored events such as the Netscape Developers Conference. IDG produces 15 conferences and expositions in China alone, and was first to offer expos in emerging markets throughout Asia, Eastern Europe, and Latin America.

EDUCATION: IDG's training subsidiary, ExecuTrain, is the world's largest computer training company, with more than 230 locations worldwide and 785 training courses. ExecuTrain specializes in the education of business professionals, teaching clients how to use popular business-related software through hands-on, instructor-led, and multimedia training. ExecuTrain also offers technical training designed to help technology professionals keep pace with technological advancements, as well as custom training solutions for an organization's unique software requirements.

MARKETING SERVICES: IDG Marketing Services helps the industry's leading IT companies build international brand recognition by developing globally integrated marketing programs via IDG's print, online, and exposition products worldwide. IDG's diverse portfolio of global partnership services includes customized research, customized publishing, targeted conferences and seminars, and direct response tools. Further information about the company can be found at www.idg.com.

PC WORLD

It's quick and easy! For free product information, visit
www.pcworld.com/productinfo

Or you can mail or fax the PC World reader service card
included in this issue (fax: 503/684-5370).

Product
info
number

Page

Product
info
number

Page

Advertiser Index A-Z

Get more information—circle the
product info number on the
reader service card.

- Adaptec Inc.	36
- Allstate Insurance, Co.	34-35
- AltaVista	144-145
12 AMS Tech	211
6 APC	105
45 APC	73
- ATI	32
- Axis Systems	246-247
- Barnes & Noble	12-13
- Bindview	216
- C/NET	164-165
91 Caere Corporation	269
68 Canon Computer Systems	2-3
41 CDW Computer Centers, Inc.	74-75
46 CDW Computer Centers, Inc.	76-77
44 CDW Computer Centers, Inc.	78-79
- Chrysler Sebring	18
- COMDEX/Fall 1999	294
- Compaq Consumer	48-51
- Compaq Consumer	156-157
- Compaq Consumer	206-207
- Compaq Consumer	C2-P1
- Compaq Direct Plus	107
- Compaq Direct Plus	196-197
- Compaq Direct Plus	198-199
62 Council on Computing Power	235
54 Creative Labs	143
42 Crossline Commercial	218-219
50 Crucial Technology	10-11
56 Crucial Technology	237
59 CruiseNet	111
77 CTX	191
- CyberMax Computer, Inc.	158
176 DataViz, Inc.	155
- Dell Computer Corp.	177-184
- Dell Computer Corp.	C5-C8
83 Dymo LabelWriter	250
- Egghead.com	217B
- Elsa Inc.	252
- Epson America	89
- Epson America	102-103
84 Executive Software	260
72 FileMaker	26-27
- firstsource.com	295-297
94 Fujitsu PC Corporation	38-39
94 Fujitsu PC Corporation	40-41
- Gateway	113-118
- Gateway	275-280
- Goodyear	241
99 Hewlett Packard-OfficeMax	200
125 Hot Office Technologies	175
- Hughes Network Systems	172-173
- IBM Corp	97
- IBM Corp	99

- IBM Corp	101
- IBM Direct	149-150
- IDG.net	326
108 iiyama North America	71
119 Imation Corporation	87
98 In Focus Systems	85
- Intel	16-17
- Iomega Corporation	65
128 Keystone Learning Systems	262
133 Kingston Technology	285
- Lernout & Hauspie	120-121
96 LG Electronics USA Inc.	69
- Matrox Graphics Inc.	195
164 McAfee Software	209
- Micron Electronics	62-63
- Micron Electronics	167-169
- Micron Electronics	171
- Micron Electronics	254-255
- Microsoft Corporation	4-5
159 Microsolutions	287
- Microtek Lab	271
153 Midwest Micro	263-265
212 Mindscape	15
57 Mindspring	67
138 MIPS Dataline	44
144 Mitsubishi Electronics America, Inc.	91
- NEC CSD	131
- NEC CSD	133
203 NEC Technologies	163
- Net.B@nk	212
216 NVIDIA	225
- OnStream	245
- Panasonic	80
195 PC America	298
66 PC MALL	292-293
178 Proxima	93
197 QMS	109
- Quantex Microsystems, Inc.	135-140
- Reel.com	24
- Samsung America	42
130 Savin Corporation	153
- Sony Electronics, Inc.	61
- Sony VAIO Direct	30-31
- Sprint Spectrum	9
- SPSS	52
- Texas Instruments Digital Light Processing	83
- The Webby Awards	328
229 Tiger Direct	329
- Toshiba America	20-21
- Toshiba America	22-23
234 Toshiba EID	147
236 Tripp Lite	347
240 Twinhead Corporation	193
250 Umax Technologies	45
239 Value America	214-215
- Vega Technologies	119
- Viewsonic	29
- Visio Corporation	215B
255 Visioneer	227
- Wal-Mart Stores	46
254 WinBook	258
187 Worldwide Computers & SW	261
- XI Computer	255

Advertiser Index by Product Category

Get more information—circle the
product info number on the
reader service card.

- Xircom

283

HARDWARE

Boards/Cards/Chips

- ATI

32

62 Council on Computing Power

235

54 Creative Labs

143

50 Crucial Technology

10-11

56 Crucial Technology

237

- Elsa Inc.

252

133 Kingston Technology

285

- Matrox Graphics Inc.

195

216 NVIDIA

225

- Texas Instruments Digital Light Processing

83

- Xircom

283

Communication/Fax/Modems

- Quantex Microsystems, Inc.

135-140

- Sprint Spectrum

9

Computers

- Axis Systems

246-247

41 CDW Computer Centers, Inc.

74-75

44 CDW Computer Centers, Inc.

78-79

46 CDW Computer Centers, Inc.

76-77

- Compaq Consumer

48-51

- Compaq Consumer

156-157

- Compaq Consumer

206-207

- Compaq Consumer

C2-P1

- Compaq Direct Plus

107

- Compaq Direct Plus

196-197

- Compaq Direct Plus

198-199

42 Crossline Commercial

218-219

- CyberMax Computer, Inc.

158

- Dell Computer Corp.

177-184

- Dell Computer Corp.

C5-C8

- Gateway

113-118

- Gateway

275-280

- IBM Corp

97

- IBM Corp

99

- IBM Corp

101

- IBM Direct

149-150

- Micron Electronics

167-169

- Micron Electronics

171

153 Midwest Micro

263-265

66 PC MALL

292-293

- Quantex Microsystems, Inc.

135-140

229 Tiger Direct

329

239 Value America

214-215

- Vega Technologies

119

- XI Computer

256

Laptop/Notebook

12 AMS Tech

211

46 CDW Computer Centers, Inc.

76-77

- Compaq Consumer

48-51

- Compaq Consumer

156-157

- Compaq Consumer

206-207

- Compaq Consumer

C2-P1

42 Crossline Commercial

218-219

94 Fujitsu PC Corporation

38-39

94 Fujitsu PC Corporation

40-41

- Gateway

113-118

- Gateway

275-280

- IBM Corp

97

- IBM Corp

99

- IBM Corp

101

- IBM Direct

149-150

- Micron Electronics

254-255

- NEC CSD

133

- NEC CSD

131

- Sony VAIO Direct

30-31

- Toshiba America

20-21

- Toshiba America

22-23

Product
info
number

Page

240 Twinhead Corporation

258

254 WinBook

172-173

- Local Area Networks

172-173

77 CTX

191

108 iiyama North America

71

144 Mitsubishi Electronics America, Inc.

91

203 NEC Technologies

163

- Samsung America

42

- Viewsonic

29

178 Proxima

93

Other

98 In Focus Systems

85

96 LG Electronics USA Inc.

60

- Panasonic

89

130 Savin Corporation

153

- Sony Electronics, Inc.

61

Peripheral/Sharing Devices

234 Toshiba EID

147

- Vega Technologies

119

- Xircom

283

Power/Protection

6 APC

105

45 APC

73

236 Tripp Lite

327

Printers/Plotters

68 Canon Computer Systems

2-3

83 Dymo LabelWriter

250

- Epson America

102-103

197 QMS

109

- Wal-Mart Stores

46

Scanners/Digitizers

- Microtek Lab

271

250 Umax Technologies

45

255 Visioneer

227

Server Machine

- Micron Electronics

62-63

Storage/Backup Devices

119 Imation Corporation

87

- Iomega Corporation

Product info number	Page	Product info number	Page	Product info number	Page	Product info number	Page
- C/NET	164-165	- Dell Dimension XPS		Headsets		- Dell Inspiron 3500	
59 CruiseNet	111	- T550	222, 242	721 ANC-700, Andrea		- C366GT	238
Mail Order		- Dell OptiPlex GX1 S	68	Electronics	192	- Dell Inspiron 7000	
41 CDW Computer Centers,		- Dell OptiPlex GX1p 500	222	724 LVA-7370 ClearVoice Collar		- A366LT	238
Inc.	74-75	754 Gateway E-1400 500	68	Microphone, Labtec	194	- Dell Latitude CPi A366XT	238
44 CDW Computer Centers,		628 Gateway E-3200 450	228	723 LVA-8550 ClearVoice Stereo		642 Gateway Solo 5150LS	238
Inc.	78-79	637 Gateway E-4200 500	222	Headset, Labtec	192	644 Gateway Solo 9150LS	238
- Egghead.com	217B	656 Gateway Essential 466C	242	725 Plantronics LS1	194	646 HP OmniBook XE2	238
- firstsource.com	295-297	627 Gateway GP6-466C	228	726 USB Digital Headworn		648 Micron TransPort Trek2	238
153 MidWest Micro	263-265	636 Gateway GP7 500	222	Microphone, Telex	194	643 Quantex T-411	238
66 PC MALL	292-293	651 Gateway Performance 500	242	722 VR-3264, Emkay	192	647 Toshiba Satellite 4030CDT	238
229 Tiger Direct	329	776 HP Brio BA C433	232	727 Parrot Switch 60-V20,			
		641 HP Vectra VL8 MT	222	XVI	194		
Online Services		- PIII-550	222	Input Devices		Office Suite	
- C/NET	164-165	- IBM PC 300PL	222	661 Cordless MouseMan Wheel,		765 Lotus SmartSuite	
- Egghead.com	217B	775 Kingdom Pinnacle 400S	232	Logitech	104	Millennium Edition 9.5	96
125 Hot Office Technologies	175	770 Micro Express		662 Freedom Writer Pro, Interlink		Operating Systems	
- IDG.net	326	MicroFlex-34D	232	Electronics	104	757 Windows 98 SE, Microsoft	134
57 Mindspring	67	769 Micro Express		663 Intuos Graphic Tablets,		758 OpenLinux 2.2, Caldera	
- Net.B@nk	212	MicroFlex-50C	232	Wacom Technology	104	Systems	151
- Reel.com	24	629 Micro Express		664 USB MiniMouse, Targus	104	759 Red Hat Linux 6	151
187 Worldwide		MicroFlex-5B	228			760 BeOS 4.5, Be, Inc.	154
Computers & SW	261	640 Micron Millennia 550	222	Interface Card		Personal Finance Software	
Other		657 Micron Millennia C466	242	739 Ultra66, Promise		761 Money 2000 Deluxe,	
- Allstate Insurance, Co.	34-35	630 Micron Millennia Max 450	228	Technology	162	Microsoft	95
- Goodyear	241	635 Micron Millennia		Microphones		762 Quicken Deluxe 2000,	
99 Hewlett Packard-		Max 500	222, 242	714 DesktopArray, Andrea		Intuit	95
OfficeMax	200	772 MidWest Micro Office		Electronics	192	Printers	
- Sprint Spectrum	9	MWO-400C	232	715 Super-Directional USB Digital		705 Brother HL-1660e	248
- The Webby Awards	328	633 MidWest Micro Office Pro		Microphone, Telex	192	763 DeskJet 970Cse, Hewlett	
Retail/Distributors		XPO 450	228	Mobile Recorders		Packard	95
- Barnes & Noble	12-13	771 MidWest Micro Office Pro		716 Dragon NaturallySpeaking		702 Lexmark Optra E310	248
Hewlett Packard-		XPO-400	232	Mobile Organizer	190	704 Lexmark Optra S 1855	248
OfficeMax	200	638 NEC Powermate VT 300	222	720 Sony ICD-80	192	707 Minolta PageWorks 18	248
Security		773 Quantex M466-2c	232	719 Vgo Digital Voice Recorder,		699 Minolta PageWorks 8L	248
- Bindview	216	655 Quantex M466C	242	Olympus	190	703 NEC SuperScript 1800	248
Supplies		634 Quantex M500	228	718 VoicePort Office, Norcom	190	701 Okidata OkiPage 6e	248
- Wal-Mart Stores	46	653 Quantex SM550 SE	242	Modems		700 Okidata OkiPage 10ex	248
Trade Shows		654 Sony VAIO Digital Studio		688 3Com U.S. Robotics		706 Ricoh Laser AP1400	248
- COMDEX/Fall 1999	294	PCV-R528DS	242	Winmodem PCI	259	698 Xerox DocuPrint P12	248
Training		778 Xi Computer 333A		694 Boca 56K Tidawave External		Projectors	
128 Keystone Learning		MTower	232	Data/Fax/Modem	259	751 InFocus LP330	72
Systems	262	Desktop Publishing		693 Diamond Multimedia		750 MP1600 Microportable	
		Software		SupraExpress 56e	259	Projector, Compaq	72
		671 InDesign, Adobe Systems	110	690 Digicom Systems Modem		Scanners	
		Dictation Software		Blaster Flash 56K PCI	259	744 Acer AcerScan Prisa	
		711 Dragon NaturallySpeaking		689 MaxTech XPV56P NetPacer		620UT	251
		Preferred 3.5	188	V.90 Internal PCI	259	749 Agfa DuoScan T1200	251
		713 FreeSpeech 2000, Philips		Data/Voice/Fax Modem	259	- Epson Perfection 636	251
		Speech Processing	189	687 MaxTech XPV56P/RS		743 HP ScanJet 5200Cse	251
		Voice Xpress Professional 4,		NetPacer Pro Internal PCI		748 HP ScanJet 6200C	251
		Lernout & Hauspie	188	Data/Voice/Fax/		742 Microtek ScanMaker X6	251
		Graphics Boards		Speakerphone Fax	259	741 Microtek SlimScan C6	251
		735 3dfx Voodoo3 2000	257	Viking 56K USB Modem	259	746 Pacific Image ScanAce	
		731 3dfx Voodoo3 3000	257	695 Viking 56K USB Modem	259	1236P	251
		732 ATI Rage Fury	257	692 Viking V.90 56K		745 Plustek OpticPro 9636T	251
		730 ATI Xpert 128	257	Speakerphone ISA		747 UMAX Astra 2400S	251
		736 Creative Labs 3D Blaster		Modem	259	Speech Utilities	
		Banshee	257	686 Zoom FaxModem 56K ISA		709 AV1700 Text	
		734 Creative Labs 3D Blaster RIVA		Dualmode	259	Reader, Fonix	186
		TNT2 Ultra	257	691 Zoom FaxModem 56K PCI		710 Conversa Web 3.0	186
		728 Creative Labs Graphics Blaster		Dualmode	259	708 Eloquent Demo Package	186
		RIVA TNT	257	Monitors		Utilities	
		733 Guillemot Maxi Gamer		684 AcerView 79g	253	Disk Manager DiskGo,	
		Xentor	257	682 DecaView PA 380	253	Ontrack	166
		737 Matrox Millennium G200		624 Diamond Pro 2020U,		625 DisplayMate for Windows	47
		SD PCI	257	Mitsubishi	47	650 DriveCopy, PowerQuest	174
		729 Matrox Millennium G400	257	624 Diamond Pro 900U,		611 GoBack, WildFile	273
		Graphics Software		Mitsubishi	47	697 Norton Utilities, Symantec	270
		767 Poser 4, MetaCreations	98	- IBM P72	253	752 PowerPad 160, Electrofuel	64
		Hard Drives		680 Iiyama VisionMaster		669 PowerPlugs: PhotoActive FX1,	
		738 Cheetah, Seagate	170	Pro 410	253	Crystal Graphics	110
		601 Fujitsu MPD3137AH	160	683 Mitsubishi Diamond		670 Presentation Pro,	
		605 Fujitsu MPD3173AT	160	Plus 71	253	Interactive	110
		- IBM Deskstar 22GXP	160	685 NEC MultiSync E750	253	622 Promise FastTrak66	44
		- IBM Deskstar 25GP	160	679 Optique V73	253	696 Undelete for Windows,	
		606 Maxtor DiamondMax		678 Samsung SyncMaster 700P		Executive	270
		6800	160	Plus	253	612 Undo & Recover Toolbox,	
		602 Maxtor DiamondMax Plus		681 Sony CPD-220GS	253	Kiss Software	273
		5120	160	677 ViewSonic PT775	253	623 Veritas Backup Exec	44
		607 Quantum Fireball CR	160	MP3 Players		764 Webforia Organizer 1.1	96
		603 Quantum Fireball Plus KA	160	665 Creative Nomad,		Video Cameras	
		608 Seagate Medialist 17242	160	Creative Labs	106	667 QuickCam Express,	
		609 Seagate U4	160	D'Music, Pine	106	Logitech	108
		610 Western Digital WD Caviar		Notebook Computers		668 Video Blaster WebCam 3,	
		20.4GB	160	Electronics	98	Creative Labs	108
		604 Western Digital WD		645 Chem USA ChemBook		Wearable Computer	
		Expert 18GB	160	7200	238	Mobile Assistant IV,	
						Xybernaut	189

Products Featured in Editorial

Get more information—circle the
product info number on the
reader service card.

Accounting Software

- 674 Revolution 2001 MIS,
- Accounting & General Ledger,
- Farber Systems Inc. 112

Backup/Storage

- 675 Clit PC Card Drive,
- Imega 100 |

- 672 InBusiness Storage Station,
- Intel 112 |

- 673 Network Disk Drive,
- NetGear 112 |

Battery

- 752 PowerPad 160, Electrofuel 64 |

CD-Writing Software

- 676 Easy CD Creator 4 Deluxe,
- Adaptec 106 |

Contact Managers

- 659 ACT 2000, Symantec 100 |

- 660 Smart Contact Manager 2,
- Surado Solutions 100 |

Desktop Computers

- 777 Acma A333 232 |

- 632 Axis Systems Orion 100C
- DVD 228 |

- 774 Axis Systems Orion LXN 232 |

- 753 Compaq Deskpro EN Small
- Form Factor 6500+ 68 |

- 639 Compaq Prosignia Desktop
- 330 222 |

- 631 CyberMax Enthusiast 500 228 |

- 650 CyberMax Enthusiast
- K111-400 242 |

- Dell Dimension L400C 242 |

- Dell Dimension L466C 228 |

- Dell Dimension XPS T450 228 |



In a developing story, IDG.net and CNN.com have been linked in a technology information coup.



This just in: CNN.com, the world's leading news site, now features technology news and information from the Web's fastest growing global technology information network — IDG.net.

CNN Interactive has discovered what readers of IDG publications have known for over 30 years: no other company can match the breadth and quality of technology information offered by IDG.

Now millions of new readers worldwide will discover what IDG.net's users have known all along — that IDG.net offers the most comprehensive, current, and useful computing information on the Web today.

PC World Online — along with fellow IDG.net sites CIO.COM, civic.com, Computerworld Online, fcw.com, InfoWorld.com, JavaWorld, Network World Fusion, and TheStandard.com — is proud to be part of the Web's most trusted network of computing publications. With 240 sites in 55 countries, IDG.net reaches more readers, in more markets, than any other Web network — and, it's growing every day.

More publications, more product reviews, more technology news — more of the quality information you need to make technology decisions for any computing environment, from the home office to the global enterprise.

IDG.net. IT all starts here.



IT ALL STARTS HERE.



www.idg.net

PROTECT

Your Entire Office with One UPS

Internet Office™ UPS

► COMPUTER

► MONITOR

► MODEM/FAX

► PRINTER

► SCANNER



- Dedicated UPS battery backup and surge-only outlets protect your entire computer setup—even printers!
- Widely-spaced AC outlets accommodate bulky transformers
- Available models include 500 VA and 700 VA stand-alone units, 280 VA slim-line design and 500 VA under-monitor configuration

NEW! Serial port and **FREE** PowerAlert® Software provide graceful unattended shutdown

NEW! 2-line modem/fax or dataline protection stops backdoor surges

NEW! Convenient battery replacement door

TRIPP LITE

POWER PROTECTION

1111 W. 35th Street, Chicago IL 60609
www.tripplite.com

Circle 236 on card or go to www.pcworld.com/productinfo

FREE LAPTOP SURGE SUPPRESSOR

(A \$24.95 Value!)

Purchase any Internet Office UPS through participating retail and catalog outlets. Then fax your invoice to (773) 869-1351, Dept. PCW today! To locate a retail outlet near you, call (773) 869-1000.

*Offer valid on invoices dated through November 30, 1999. Offer not valid with any other promotions.



"Forget the Oscars, here come the Webbies."

The New York Times, January 7, 1999

Call for Entries

The International Academy of Digital Arts & Sciences™ invites
you to submit your Web site for The 4th Annual Webby Awards®

www.webbyawards.com

Honoring the Best of The Web In 24 Categories:

Activism, Arts, Community, Commerce, Education,
Fashion, Film, Finance, Games, Health, Humor, Living, Music,
News, Personal Web Site, Politics & Law, Print & Zines, Radio,
Science, Sports, Technical Achievement, TV, Travel, Weird

Deadline: October 8, 1999

An IDG Event

we also walk dogs



PREFER



Premium Component PC Systems

AMD K6-2475MHz

AMAZINGLY LOW!

\$199⁹⁹*

*After Rebate

Tiger CreditCard
\$20/mo.

#TS4-M-11E
 Monitor sold separately

One Of The Fastest PCs In The World Today!
 Premium Components, Low Price!

LOWEST PRICES—GUARANTEED!



Editors' Choice

WinLIST
 Windows Magazine 1998

BlackoutBuster UPS
 Protect Your Complete System!
 Ask for Item #P140-1000x \$39.99*
 *With the purchase of a TigerSystem



All Tiger Systems Include...

- High-Speed CD-ROM
- 56K v.90 Faxmodem
- Scrolling Wheel Mouse
- Wavetable 3D Sound
- Two 16550 Serial Port
- One Parallel Port
- 3.5" Floppy Diskette Drive
- Amplified Speakers
- 6-Bay Case w/235 Watt Power Supply
- Windows 98 Pre-loaded
- One-Year Depot Warranty
- 100% Quality Components

24-HOUR TOLL-FREE TECH SUPPORT

Built With Premium Components In The USA



GET A \$400 REBATE

*On Any Tiger System Advertised On This Page When You Sign Up For Juno Web™ Internet service For 3 Years at Juno's Low Monthly Rate!

AT-A-GLANCE

Item #	CPU	Monitor	RAM	Hard Drive	CD-ROM †	Video	Motherboard	Tiger Credit Card	Tiger Price	After Rebate
CTRTM44B	AMD K6-300MHz	15"	32MB PC 100	4.3GB UDMA	24X	PCI/2MB	AT/512KB Cache	\$17/Month	\$549.99	\$149.99
CTRTM40B	AMD K6-2/475 3DNow!	15"	64MB PC 100	6.4GB UDMA	32X	AGP/8MB	AT/1MB Cache	\$23/Month	\$739.99	\$339.99
CTRTM35C	AMD K6-2/350 3DNow!	17"	128MB PC 100	10GB UDMA	32X	AGP/8MB	AT/1MB Cache	\$25/Month	\$819.99	\$419.99
CTRTM37	AMD K6-2/400 3DNow!	17"	128MB PC 100	10GB UDMA	32X	AGP/8MB	ATX/1MB Cache	\$26/Month	\$839.99	\$439.99
CTRTM50A	Celeron 400MHz	15"	64MB PC 100	8GB UDMA	32X	AGP/8MB	ATX/Slot 1	\$23/Month	\$699.99	\$299.99
CTRTM51A	Celeron 500MHz	15"	96MB PC 100	8GB UDMA	32X	AGP/8MB	ATX/Slot 1/Socket 370	\$26/Month	\$829.99	\$429.99
CTRTM39	AMD K6-III/400 3DNow!	17"	128MB PC 100	13GB UDMA	40X	AGP/8MB	ATX/1MB Cache	\$30/Month	\$949.99	\$549.99
CTRTM47	AMD K6-III/450 3DNow!	17"	128MB PC 100	20GB UDMA	40X	AGP/8MB	ATX/1MB Cache	\$34/Month	\$1099.99	\$699.99
CTRTM42B	Pentium III 450	17"	128MB PC 100	13GB UDMA	40X	AGP/8MB	ATX/Slot 1/Socket 370	\$33/Month	\$999.99	\$599.99
CTRTM43B	Pentium III 500	17"	128MB PC 100	13GB UDMA	40X	AGP/8MB	ATX/Slot 1/Socket 370	\$39/Month	\$1099.99	\$699.99
CTRTM45B	Pentium III 550	17"	128MB PC 100	20GB UDMA	40X	AGP/8MB	ATX/Slot 1/Socket 370	\$43/Month	\$1499.99	\$1099.99
CTRTM46A	Pentium III 600	17"	128MB PC 100	20GB UDMA	40X	Voodoo 3 AGP/16MB	ATX/Slot 1	\$50/Month	\$1649.99	\$1249.99

*Call For details on Tiger's Internet Rebate. Monthly payments when purchased using the Tiger Credit card. Ask about special financing programs available. † CD-ROM speeds are variable, maximum speeds are shown. Sorry we do not offer price protection in the event prices rise or fall. Call for warranty information. All systems include a 1-year upgradeable Depot warranty. See www.tigerdirect.com/warranty for entire policy. Copyright, 1999, TigerDirect. All trademarks acknowledged. Monitor viewable areas: 15"—13.9", 17"—15.8". The AMD logo, K6, 3DNow!, and combinations thereof, are registered trademarks of Advanced Micro Devices, Inc.

Take Advantage Of This Great Deal—A PC For FREE!



FREE! PC*
 E-400-1026

The eTowers 366i2 and 400i2 include:
 • Windows 98 • Microsoft Works
 • \$400 Mail-in Rebate with a 3-year membership for CompuServe 2000

eTower 366i2
 • Intel Celeron 366MHz
 • 128K L2 Cache
 • 32MB SyncDRAM
 • ATI AGP Turbo (4MB)
 • Sound, Speakers
 • Up To 40x Max CD
 • 4.3GB HDD
 • 3.5" 1.44MB FDD
 • 56Kbps V.90 Modem
 • PS/2 KBD/Mouse,
 • 2 USB Ports
 • Internet Ready
 Amazing Offer—It's...
FREE!
 #E-400-1025

eTower 400i2
 • Intel Celeron 400MHz
 • 128K L2 Cache
 • 64MB SyncDRAM
 • ATI Rage Pro 3D (4MB)
 • Sound, Speakers
 • Up To 40x Max CD
 • 6.4GB HDD
 • 3.5" 1.44MB FDD
 • 56Kbps V.90 Modem
 • PS/2 KBD/Mouse,
 • 2 USB Ports
 • Internet Ready
 Best Offer Ever!
\$99⁹⁹
 #E-400-1020

TigerBook Z-Series \$699⁹⁹*

TigerBook Z3 — 350MHz
 • AMD K6-2/350 • 12.1" STN Passive Color LCD SVGA
 • 32MB EDO RAM • 3.2 GB UDMA Hard Drive
 • 24x CD-ROM Drive† • 1.44MB Floppy Drive
 • 56K v.90 PCMCIA Modem • Windows 98

TigerBook Z5 — 380MHz
 • AMD K6-2/380 • 13.3" ActiveMatrix XGA
 • 64MB EDO RAM • 4.3 Gigabyte UDMA HardDrive
 • 24x CD-ROM Drive† • 1.44MB Floppy Drive
 • Windows 98 • 56K v.90 PCMCIA Modem

TNB-1001M TigerBook Z3 \$699.99†
 TNB-2001M TigerBook Z5 \$1129.99†

*Price after \$50 Mail-in Rebate. 1 After \$400 Tiger Internet Rebate. When You Sign Up For Juno Web™ Internet service For 3 Years



Has Microsoft Gone Bankrupt?

SO MICROSOFT HAS BEGUN cooking up a new version of Windows "for consumers." Due out next year, it's code-named Millennium, perhaps because it gives the company up to 1000 years to ship it and be on time for once. The new slogan? "It Just Works."

Hmmm. Check Microsoft's archives and you'll find a press release from June of last year touting the then-forthcoming Windows 98.

The mantra? "It just works better."

Is something that "just works" really an improvement over something that "just works better"? Maybe the next step is "works—just." This recycled sloganeering appears to be a symptom of Microsoft's monopoly-era blues. Having vanquished most of its competitors by borrowing their best concepts, it now has to steal stale ideas from itself or buy fresh ones on the open market. Microsoft may have billions of dollars in its exchequer, and will rake in billions more, but when it comes to intellectual capital, the company looks strangely bankrupt.

NOT INVENTED HERE? GREAT!

MICROSOFT'S FLAGSHIP product, whether Basic, DOS, or Windows, has always imitated something invented elsewhere. Word was a knockoff of similar programs that ran on early Xerox operating systems. Internet Explorer used Mosaic code and Netscape concepts. Games like Flight Simulator were developed away from the Microsoft campus.

Sure, products like Excel were moderately innovative. The company has also introduced the occasional clever feature—like squiggly-line spell-checking. But Microsoft's list of failures is long and ugly. It includes nearly every CD-ROM or Web site the company has ever created, save for Encarta. That's probably because content requires a different kind of creativity than cranking code.

So does user interface design. After swiping as much as it could from the Mac, Microsoft ran out of victims. The all-too-original Microsoft Bob begat the feckless Office Assistants. The



Microsoft may have billions in the bank, but when it comes to intellectual capital, the company looks strangely bankrupt.

goofy Windows CE arrived to a collective groan. Then came Active Desktop, which was so roundly detested it was killed in its infancy.

MILLENNIUM MESSIAH?

AND WHO'S IN CHARGE of Millennium's new look? The same genius who gave us Active Desktop. Fortunately, the look and feel of the operating system ultimately don't matter much. Most people see their browser and their word processor far more than their desktop. All they really care about is that the OS "just works."

Good luck. Back at "It just works better," we were told our machines would boot and shut down faster; instead, PCs took longer to boot and sometimes wouldn't shut down at all. And that's not the only false assurance we heard.

Promise: "Native support for USB, which makes adding hardware devices as easy as plugging in a toaster." Reality: No toaster I'm aware of occasionally fails to recognize the electrical system.

Promise: "...users can speed up their systems so programs load faster." Reality: Any seconds saved will be lost to the painfully slow defrag utility that does the optimizing.

Promise: "Enhanced performance and reliability." Reality: "Microsoft Technical Support Ready for Windows 98 Launch; More than 1000 Support Engineers Standing By."

Now comes Just Works 2000, for which the claims are so modest, you wonder why anyone would bother upgrading. Home networking is supposed to be easier; there's a bigger focus on digital media and games; and you'll allegedly get a "premier home online experience," whatever that means. But when it comes to security, an increasingly ominous worry in an interconnected world, the company is silent.

And then there's "It Just Works." According to the press release, "This promise will be delivered upon by the advancement of the PC's self-healing functionality, in addition to providing a simpler setup and a great out-of-the-box experience." Our motto here at *Full Disclosure*: "Won't get fooled again!" If "self-healing functionality" means you still have to heal a balky machine yourself, and "simpler setup" amounts to having to type in a shorter serial number, don't say I didn't warn you.

PC World Contributing Editor Stephen Manes is the cohost of Digital Duo, a series appearing on public television stations nationwide. For program information see www.digitalduo.com. ■

BIG DEAL.



**15" SCREEN
AT \$1999.**

DELL® INSPIRON™ 7000

Mobile Desktop

- Intel® Celeron™ Processor at 366MHz
- 15" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB¹ Ultra ATA Hard Drive
- Removable Combo 24X Max² Variable CD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE™ Mobility™ P 3D Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Microsoft® Works Suite 99 with Money 99 Basic
- McAfee VirusScan 4.02
- Microsoft Windows® 98 Second Edition
- Touchpad
- 3-Year Limited Warranty²
- ★ Upgrade to 64MB SDRAM, add \$99.
- ★ Upgrade to a 6.4GB¹ Ultra ATA Hard Drive, add \$99.
- ★ NEW CompleteCare™ Service,³³ add \$179.

\$1999

Business Lease³⁵: \$67/Mo., 36 Mos.

 **E-VALUE CODE: 03679-890919**

800-433-7307



USE THE POWER OF THE E-VALUE™ CODE.

MATCH OUR LATEST TECHNOLOGY WITH
OUR LATEST PRICES. ENTER THE E-VALUE
CODE ONLINE OR GIVE IT TO YOUR SALES
REP OVER THE PHONE.

WWW.DELL.COM/EVALUE

BE DIRECT™



www.dell.com

Phone Hours: M-F 7a-9p • Sat 10a-6p • Sun 12p-5p CT • In Canada¹ call 800-232-6978 • in Mexico¹ call 01-800-021-4531

AT dell.com YOU CAN MAKE

DELL DIMENSION DESKTOPS FOR BUSINESS

Common features: Dell QuietKey® Keyboard • 24-Hour Toll-free Telephone and Online Technical Support • 3-Year Limited Warranty* • 1-Year Next-Business-Day On-Site³ Service • Microsoft Windows® 98 Second Edition • McAfee VirusScan 4.02 • 3.5" Floppy Drive • 2 USB Ports

NEW DELL DIMENSION® XPS T600

Cutting Edge Performance

- Pentium® III Processor at 600MHz
- Mini-Tower Model
- 96MB 100MHz SDRAM
- 13.6GB⁴ Ultra ATA Hard Drive
- 17" (16.0" vis., .26dp) P780 Trinitron® Monitor
- 16MB Diamond Viper nVidia TNT AGP Graphics Card
- 40X Max⁵ Variable CD-ROM Drive
- Altec Lansing ACS-340 Speakers with Subwoofer
- 3Com® 3C905C-TXM 10/100 NIC
- 100MB iomega Zip BUILT-IN Drive
- Microsoft® Office 2000 Small Business Plus Bookshelf 2000
- MS® IntelliMouse®

\$1999

Business Lease¹⁵: \$67/Mo., 36 Mos.

 **E-VALUE CODE: 03680-590919**

DELL DIMENSION XPS T450

Solid Performance, Great Value

- Pentium III Processor at 450MHz
- Mini-Tower Model
- 32MB 100MHz SDRAM
- 4.3GB⁴ Ultra ATA Hard Drive
- 15" (13.7" vis.) 800F Monitor
- 8MB ATI XPERT 98D 3D AGP Graphics Card
- 40X Max⁵ Variable CD-ROM Drive
- 3Com 3C905C-TXM 10/100 NIC
- Microsoft Works Suite 99
- MS IntelliMouse

★ Upgrade to 64MB SDRAM, 6.4GB⁴ Hard Drive, Microsoft Office 2000 Small Business, add \$139

\$999

Business Lease¹⁵: \$33/Mo., 36 Mos.

 **E-VALUE CODE: 03680-590909**

NEW DELL DIMENSION L400c

Affordable Desktop Solution

- Intel Celeron Processor at 400MHz
- Micro-Tower Model
- 32MB 100MHz SDRAM
- 4.3GB⁴ Ultra ATA Hard Drive
- 15" (13.7" vis.) 800F Monitor
- Intel 3D AGP Graphics Card
- 40X Max⁵ Variable CD-ROM Drive
- SoundBlaster 64V Integrated Sound
- Integrated Intel 10/100 Ethernet Controller
- Microsoft Works Suite 99
- Logitech FirstMouse+Wheel (PS/2v)

★ Upgrade to 64MB SDRAM, 6.4GB⁴ Hard Drive, harman/kardon HK-195 Speakers and Microsoft Office 2000 Small Business, add \$199

\$799

Business Lease¹⁵: \$27/Mo., 36 Mos.

 **E-VALUE CODE: 03680-590907**

SOFTWARE OPTIONS for Dell Desktops & Notebooks

Microsoft Works Suite 99 Includes:

- Word 97
- Encarta Encyclopedia 99
- Money Basic 99
- Works 4.5a
- Works Calendar
- Graphics Studio Greetings
- Expedia Streets 98

Microsoft Office 2000 Small Business Includes:

- Word 2000
- Excel 2000
- Publisher 2000
- Outlook 2000
- Small Business Tools
- Bookshelf 99

Microsoft Office 2000 Pro Includes:

- Same as MS Office 2000 Small Business, plus:
- PowerPoint 2000
- Access 2000
- Microsoft Office Assistant

DELL DIMENSION DESKTOPS FOR HOME

Common features: Mini-Tower Model (Micro-Tower on Intel Celeron Processor-based Systems) • 512KB Integrated L2 Cache (128KB on Intel Celeron Processor-based Systems) • Dell QuietKey Keyboard • 3.5" Floppy Disk Drive • Two USB Ports • MS Works Suite 99 with Money 99 Basic • McAfee VirusScan 4.02 • MS Windows 98 Second Edition • 3-Year Limited Warranty* • 1-Year At-home³ Service **Upgrades:** 3-Year At-home³ Service, add \$99 • HP DeskJet® 882c, add \$299

NEW DELL DIMENSION XPS T600 PENTIUM III PROCESSOR AT 600MHz

- 128MB 100MHz SDRAM
- 27.3GB⁴ Ultra ATA Hard Drive
- 19" (17.9" vis., .26dp) P990 Trinitron® Monitor
- NEW 32MB Diamond Viper 770D nVidia Ultra AGP Graphics
- NEW 8X Max⁵ Variable DVD-ROM Drive and Decoder Card with TV Out
- SoundBlaster Live! Value 512V Sound Card
- Altec Lansing ADA880 Speakers with Subwoofer
- 3Com® USR V90¹¹ PCI Telephony WinModem
- 250MB iomega Zip BUILT-IN Drive
- MS IntelliMouse®

★ NEW 1-Year Dellnet Internet Access⁴⁴ with 20MB Online Backup⁵⁵

\$2999

 **E-VALUE CODE: 03680-500929**

NEW DELL DIMENSION XPS T600 PENTIUM III PROCESSOR AT 600MHz

- 128MB 100MHz SDRAM
- 13.6GB⁴ Ultra ATA Hard Drive
- 17" (16.0" vis., .26dp) M780 Monitor
- 16MB 3DFX Voodoo3 3000D AGP Graphics
- 8X Max⁵ Variable DVD-ROM Drive
- Yamaha XG 64V Wavetable Sound
- harman/kardon HK-195 Speakers
- 3Com® USR V90¹¹ PCI Telephony WinModem
- Logitech MouseMan® Wheel (PS/2v)

★ NEW 1-Year Dellnet Internet Access⁴⁴ with 20MB Online Backup⁵⁵

\$1899


 **E-VALUE CODE: 03680-500918**

DELL DIMENSION XPS T450 PENTIUM III PROCESSOR AT 450MHz

- 64MB 100MHz SDRAM
- 6.4GB⁴ Ultra ATA Hard Drive
- 17" (16.0" vis., .26dp) M780 Monitor
- 16MB 3DFX Voodoo3 3000D AGP Graphics
- 48X Max⁵ Variable CD-ROM Drive
- Yamaha XG 64V Wavetable Sound
- harman/kardon HK-195 Speakers
- V.90 PCI DataFax Modem
- MS IntelliMouse

★ NEW 1-Year Dellnet Internet Access⁴⁴ with 20MB Online Backup⁵⁵

\$1299

 **E-VALUE CODE: 03680-500912**

DELL DIMENSION L400c INTEL CELERON PROCESSOR AT 400MHz

- 32MB 100MHz SDRAM
- 4.3GB⁴ Ultra ATA Hard Drive
- 15" (13.7" vis.) 800F Monitor
- Intel 3D AGP Graphics
- 40X Max⁵ Variable CD-ROM Drive
- SoundBlaster 64V PCI Sound Card
- harman/kardon HK-195 Speakers
- V.90¹¹ PCI DataFax Modem
- Logitech First Mouse+ Wheel (PS/2v)

★ NEW 1-Year Dellnet Internet Access⁴⁴ with 20MB Online Backup⁵⁵

\$899

 **E-VALUE CODE: 03680-500908**



Pricing not discountable. *Prices and specifications valid in U.S. only and subject to change without notice. †For a complete copy of Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Site Service may be provided by a third-party provider under contract with Dell, and is not available in certain areas. Technician will be dispatched if necessary following phone-based troubleshooting. At-home between customer and third-party provider, and is not available in certain remote areas. Technician dispatched if necessary pursuant to phone-based troubleshooting with technical support personnel. ‡For total accessible capacity varies depending on operating environment. †17X Min. †14X Min. †10X Min. †2X Min. †Download speeds limited to 53Kbps. Upload speeds are less (in the 30Kbps range) and vary by rate depending on line conditions. Analog phone line and compatible server equipment required. †Maximum RAM configurations require factory installed 128MB SDRAM, which must be installed at time of initial p by Dell Financial Services L.P., an independent entity, to qualified customers. Above lease payments based on 36-month lease, and do not include taxes, fees, shipping charges, subject to credit approval and availability without notice. ‡Packaging and documentation differ from retail versions of software. ‡CompleteCare³⁰ service excludes theft, loss, and damage due to fire or intentional damage. CompleteCare following states: Florida, New Mexico, Montana and New York. NY customers should check with Dell for changes in availability. In addition, CompleteCare³⁰ is not available to individuals/home users of Dell Home Systems Co. For complete details please visit www.dell.com. ‡Includes 150 hours Internet access per month, with a \$1.50 per hour charge for each hour (or fraction thereof) over 150 hours. Remote charge of \$4.95 for each hour of Dellnet³⁰ service. Excludes applicable taxes and local/long distance telephone access fees or charges. ‡Online backup services are provided by a third party, and such service conditions between such third party and the customer. Dell disclaims any responsibility for lost customer data. ‡6X Max/2.4X Min. DVD video decode functionality is software based with the advertised configuration. Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. MS, Microsoft, IntelliMouse, Windows and Windows NT are registered trademarks of Microsoft Corporation. 3Com is a registered trademark of 3Com Corporation. Trinitron is a registered trademark of Sony Corporation. HP and DeskJet are registered trademarks and OpenView is a trademark of Hewlett-Packard Corporation. ©1999 Dell Computer Corporation.

E A MILLION. (PCs, THAT IS.)

DELL MANGED PC

DELL OPTIPLEX® GX100 433s

Network-Optimized Desktop

- Intel Celeron Processor at 433MHz
- OptiFrame S Tool-Less Chassis
- 32MB 100MHz SDRAM
- 4.3GB¹ SMART Ultra ATA Hard Drive
- 15" (13.7" vis) 800F Monitor
- Intel Direct AGP Graphics
- 3Com[®] Fast EtherLink[™] XL 10/100 PCI NIC with ACPI on Remote Wakeup
- MS Windows NT Workstation 4.0
- 3-Year NBD On-site³ Service
- ★ *Call about our Small Business Series Featuring MS Office 2000 Products*
- ★ *Upgrade to 64MB SDRAM, add \$49.*
- ★ *Upgrade to 6.4GB¹ Smart Ultra ATA Hard Drive, add \$29.*

\$949

Business Lease¹⁵: \$32/Mo., 36 Mos.

 **E-VALUE CODE: 03680-39099**

DELL WORKSTATION

DELL PRECISION™ WORKSTATION 410 (DUAL PROCESSOR/RAID CAPABLE)

Advanced Performance and Graphics

- Pentium III Processor at 550MHz
- 128MB 100MHz ECC SDRAM
- 9GB¹ (7200 RPM) Ultra-2/LVD SCSI Hard Drive
- 17" (16.0" vis) P780 Trinitron[®] Monitor
- 32MB Diamond Viper V770D Graphics Card
- 40X Max² Variable CD-ROM Drive
- Integrated Sound Blaster Pro Compatible Sound
- Integrated 3Com Fast EtherLink XL 10/100 PCI NIC with Remote Wakeup
- Remote Client Manageability Support via DMI 2.0; WuOL Capable
- MS Windows NT Workstation 4.0 and 1-Year NT Telephone Support
- 3-Year NBD On-site³ Service
- 7x24 Dedicated Workstation Hardware Telephone and Online Technical Support

\$2979

Business Lease¹⁵: \$100/Mo., 36 Mos.

 **E-VALUE CODE: 03680-49029**

DELL POWEREDGE SERVERS

Common features: 512KB Integrated L2 ECC Cache • Intel Pro/100+ PCI Ethernet Adapter • HP[®] OpenView[™] NNM Special Edition • 40X Max² Variable CD-ROM Drive • 7x24 Dedicated Server Hardware Telephone and Online Technical Support • 3-Year Next-Business-Day On-site³ Service

DELL POWEREDGE 2300 SERVER (RAID 5 CONFIGURATION)

Workgroup Server

- Pentium III Processor at 500MHz
- 128MB 100MHz ECC SDRAM
- Three 9GB¹ (7200 RPM) Ultra-2/LVD SCSI Hot-Swap Hard Drives
- Ultra-2/LVD PowerEdge Expandable RAID Controller 2/Single-Channel
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 6-1" Hard Drive Bays
- 4 Media Bays: 3-5.25" and 1-3.5"
- ★ *MS Windows NT Server 4.0 add \$799.*

\$3949

Business Lease¹⁵: \$132/Mo., 36 Mos.

 **E-VALUE CODE: 03680-290939**

DELL POWEREDGE 1300 SERVER (DUAL PROCESSOR/RAID CAPABLE)

Entry-Level Server

- Pentium III Processor at 450MHz
- 64MB 100MHz ECC SDRAM
- 9GB¹ (7200 RPM) Ultra-2/LVD SCSI Hard Drive
- Integrated PCI Ultra-2/LVD SCSI Controller
- 6 Expansion Slots: 5 PCI, 1 PCI/ISA
- 4 Hard Drive Bays: 2-1.6" and 2-1"
- 3-5.25" Media Bays
- ★ *MS Windows NT Server 4.0 add \$799.*
- ★ *Upgrade to an 18GB¹ (7200 RPM) Ultra-2/LVD SCSI Hard Drive, add \$300.*

\$1649

Business Lease¹⁵: \$55/Mo., 36 Mos.

 **E-VALUE CODE: 03680-290916**

DELL NOTEBOOKS

Common features: 3D Surround Sound with Wavetable • Lithium Ion Battery • Touchpad • HyperCool[™] Thermal Management Solution • StrikeZone[™] Shock Absorber (Not Available on Inspiron[™] 3500) • 3-Year Limited Warranty² (Inspiron Systems Only) • McAfee VirusScan 4.02 (Inspiron Systems only)

DELL INSPIRON 7000

Mobile Desktop

- Pentium II Processor at 400MHz
- 15" XGA Active Matrix Display
- 96MB SDRAM
- NEW 25GB¹ Ultra ATA Hard Drive
- NEW Removable Combo 6X Max² Variable DVD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE Mobility[™] P 3D Video
- Internal 56K Capable¹¹ v.90 Fax Modem
- Microsoft[®] Office 2000 Small Business
- MS Windows 98 Second Edition
- ★ *NEW CompleteCareSM Service³, add \$179.*

\$3579

Business Lease¹⁵: \$120/Mo., 36 Mos.

 **E-VALUE CODE: 03680-890935**

DELL INSPIRON 7000

Mobile Desktop

- Intel[®] Celeron[™] Processor at 366MHz
- 15" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB¹ Ultra ATA Hard Drive
- Removable Combo 24X Max² Variable CD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE Mobility[™] P 3D Video
- Microsoft[®] Works Suite 99 with Money 99 Basic
- MS Windows 98, Second Edition
- ★ *3-Year NBD On-site³ Service, add \$179.*

\$1999

Business Lease¹⁵: \$67/Mo., 36 Mos.

 **E-VALUE CODE: 03680-890919**

DELL LATITUDE CP1

Network-Optimized Notebook

- Intel Celeron Processor at 400MHz
- 14.1" XGA Active Matrix Display
- 32MB SDRAM (512MB Max¹)
- 4.8GB¹ Ultra ATA Hard Drive
- Modular 24X Max² Variable CD-ROM Drive
- Modular Floppy Drive
- MagicMedia[™] 256ZX
- Lithium Ion Battery with ExpressCharge[™] Technology
- MS Windows NT Workstation 4.0
- 1-Year Next-Business-Day On-site³ Service
- ★ *Upgrade to 64MB SDRAM, add \$99.*

\$1899

Business Lease¹⁵: \$64/Mo., 36 Mos.

 **E-VALUE CODE: 03680-790918**


DELL INSPIRON 3500

Light Weight, Light Price

- Intel Celeron Processor at 366MHz
- 14.1" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB¹ Ultra ATA Hard Drive
- Modular 24X Max² Variable CD-ROM and Floppy Drive
- NeoMagic[®] MagicMedia[™] 256AV AGP Video
- Microsoft Works Suite 99 with Money 99 Basic
- MS Windows 98, Second Edition
- ★ *Upgrade to 64MB SDRAM, add \$99.*
- ★ *Mobility Bundle: Internal 56K Capable¹¹ v.90 Fax Modem, MS Office 2000 Small Business and Deluxe Nylon Carrying Case, add \$99.*

\$1799

Business Lease¹⁵: \$60/Mo., 36 Mos.

 **E-VALUE CODE: 03680-890917**

Way, Round Rock, TX 78682. ²On-site provided via service contract drives, GB means 1 billion bytes, n manufacturer. Speeds also vary case. ¹⁵Business leasing arranged lity. Above lease terms subject to is currently not available in the otebooks purchased through Dell iscribers subject to an additional re provided subject to terms and on. Intel, the Intel Inside logo and trademark and Fast EtherLink is a Corporation. All rights reserved.

Phone Hours: Mon-Sun 7a-11p CT • In Canada¹ call 800-232-6978
In Mexico¹ call 01-800-021-4531 • GSA Contract #GS-35F-4076D



USE THE POWER OF THE E-VALUE CODE.
MATCH OUR LATEST TECHNOLOGY WITH OUR LATEST PRICES. ENTER THE E-VALUE CODE ONLINE OR GIVE IT TO YOUR SALES REP OVER THE PHONE.
WWW.DELL.COM/EVALUE

800-433-7307

BE DIRECT™
DELL
www.dell.com

LOOK INSIDE FOR
DELL SYSTEMS STARTING AT \$799.

NOW INSIDE EVERY PC: A COMPLETE SUPPORT DEPARTMENT.



17" (16.0" vis) P780 Monitor shown above

You're getting more than ever before inside our newest Dell PCs. Like the Pentium® III processor designed to run large, multimedia-rich applications. And our many free online services at support.dell.com, featuring personal support pages and Ask Dudley™ – a search engine that troubleshoots in everyday language. What more could you possibly want inside a PC? Visit dell.com and build yours today.

800-433-7307

Phone Hours: M-F 7a-9p • Sat 10a-6p • Sun 12p-5p CT
In Canada, call 800-232-6978 • In Mexico, call 01-800-021-4531



USE THE POWER OF THE E-VALUE™ CODE.

MATCH OUR LATEST TECHNOLOGY WITH OUR
LATEST PRICES. ENTER THE E-VALUE CODE
ONLINE OR GIVE IT TO YOUR SALES REP OVER
THE PHONE. ALSO GO ONLINE TO DISCOVER YOUR
IDEAL COMPUTER. CHECK THE LATEST PRICES
AND GET 24 HR. ONLINE TECH SUPPORT.

WWW.DELL.COM/EVALUE

DELL® DIMENSION® XPS T500

- Pentium® III Processor from 500MHz to 600MHz
- 96MB up to 768MB 100MHz SDRAM
- 13.6GB⁴ up to 34.2GB⁴ Ultra ATA Hard Drive
- 17" (16.0" vis) M780 up to 21" (19.8" vis) Trinitron™ Monitor
- 8MB up to 32MB Graphics Card
- CD-ROM, Sound, Speakers, and Zip Drive
- MS® Office 2000 Small Business
- MS Windows® 98, Second Edition
- 3-Year Limited Warranty²
- 1-Year Next-Business-Day On-site³ Service
- ★ Upgrade to 17" (16.0" vis) P780 Monitor with NEW FD Trinitron Technology, add \$79
- ★ NEW Dellnet™ 1-Year Internet Service⁵⁵ with 20MB of Online Service⁵⁵, add \$129

Starting at **\$1499**

Business Lease⁵⁵ Starting at: \$50/Mo., 36 Mos.

 **E-VALUE CODE: 03681-590914**

BE DIRECT™
DELL®
www.dell.com